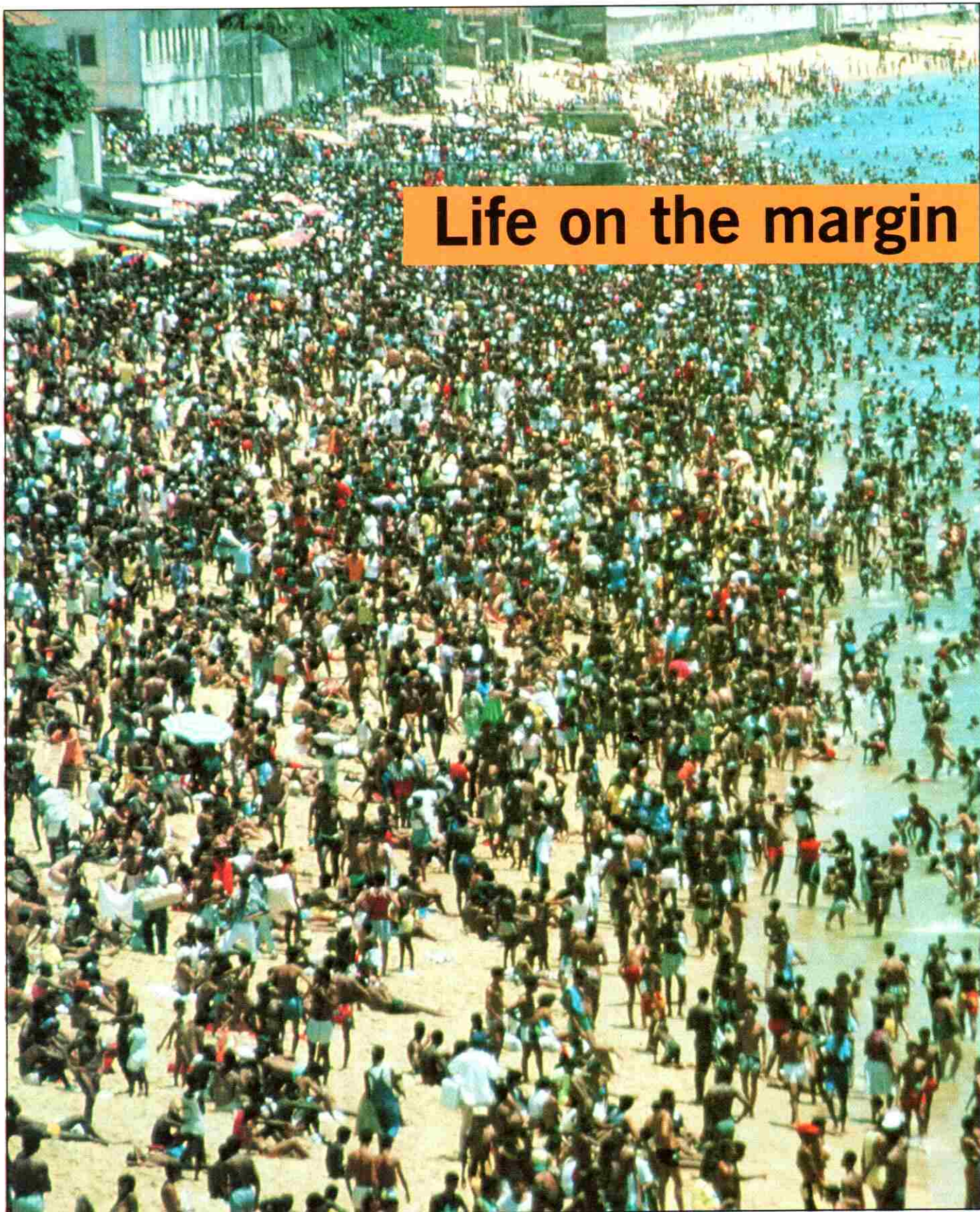


People & the Planet

IPPF, UNFPA, IUCN

Vol. 3 No. 1 1994

Life on the margin





Contents

■ Our next issue reports on Families in a Changing World and on the policies needed to support them.

People & the Planet

On the edge

The build-up of human populations along the coastal fringes of our world is one of those slow-motion crises that are rarely remarked by policy makers. Within three decades a billion more people will be living along the coasts than are alive today. If present trends in exploitation continue, 70 per cent of our coral reefs and 60 per cent or more of our remaining mangroves and coastal wetlands could be lost.

One of the difficulties, as Rodney Salm puts so well, is that coral reefs are hidden below the sea's reflective surface; the problems of sea management, too, are "hidden and mysterious". If this were not so we would surely have seen a global campaign to save these underwater treasures to match that on tropical forests. Unfortunately the people who depend on these equally rich and diverse ecosystems are poor and powerless.

The fact that 80 per cent of the world's fish catch is coastal and that most of the fish and shellfish consumed in Asia, for example, is dependent on coral reefs, mangroves and sea grasses for various critical stages in their life cycles is too often forgotten.

One striking fact to emerge from all the articles in this issue is the consensus that "the whole problem is centred around people" as the leader of the Chesapeake Bay Foundation puts it. It is people not politicians who are leading the battle to Save the Bay. It is fishermen in Haiti who are critical to the success of a local marine park. It is the women of Capiz in the Philippines who are mobilizing to take care of their environment. And it is the local residents who are fighting to save Bandra Beach on Bombay's Arabian Sea coast. The difficult question in this, as in other matters, is how such local initiatives can be broadened out.

Stephen Olsen and Lynne Hale have shown one solution in Thailand, by starting locally, and building on this experience to widen the constituency of support into a national programme. But, as they say, effective coastal management is first and foremost a problem of governance which will require big changes in entrenched individual and institutional values and behaviour. That is the important and urgent message which runs through this, and other, issues of *People & the Planet*.

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J RYLE/HUTCHISON LIBRARY

Left: *Collecting silt, Ganges Delta, Bangladesh.*

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NEWS FILE

Erosion threatens Kenya's coasts

The felling of mangrove forests to make way for tourist and industrial development is increasing erosion along Kenya's coastline, according to a report by the UN Environment Programme.

Erosion now threatens some of the country's major resorts, which earned \$192 million in foreign exchange in 1992. Ports, fishing grounds and farmland are in danger along virtually all of Kenya's economically active coastline.

Geologists, who wrote the report – one of a series of studies aimed at developing coastal management strategies for Africa – warn that the town of Mamburi, with a population of 10,000, could be swamped. Much of the hinterland of Mombasa port could be flooded, along with salt pans near Malindi.

They say refuse disposal sites, septic tanks and latrines could also be flooded, with the risk of increasing water-borne diseases, while bore holes serving 250,000 people may become saline and polluted.

Felling of mangroves has doubled over the last 10 years, to make way for hotels and to build housing.

Eric Odada, a geologist at the University of Nairobi, has called for "a phased disengagement from the coast" and effective development control laws. – *Panos.*

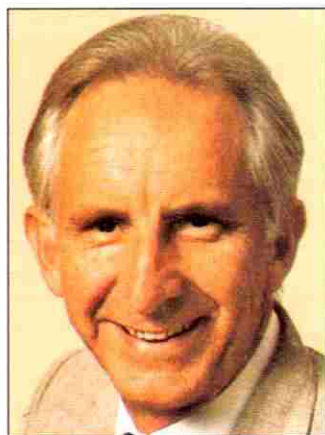
Australian aid hiccup

Australia's plans to become one of the most generous donors to population programmes received a

setback last October, which has yet to be resolved.

Population aid was all set to jump from A\$6.6 million (US\$9.9) in 1991-92 (0.5 per cent of Australian aid) to A\$29.5 million, or 2.2 per cent of aid, in 1993-4. In 1991 only three donors – Norway, USA and Finland – gave a higher percentage to population programmes.

In order to get its budget through a finely balanced senate, the Government needed the vote of Tasmanian independent senator Brian Harradine. Harradine is a committed Roman Catholic, father of six children and stepfather of seven more. He is concerned about human rights abuses in China and Bangladesh, favours promotion of breast feeding as a method of family planning, and denies the links between population growth, environmental degradation and poverty.



Harradine insisted that any Australian population aid which was not already committed (a total of A\$34 million over five years) should be suspended pending an independent inquiry into the links between population growth and economic development. Only A\$3.2 million for the current year is immediately affected. The

Government clearly hopes that the inquiry will show that the links are real, so that the programme can go ahead as planned.

The deal was widely condemned, but the dispute brought one bonus. It raised public awareness of the population issue, which got more media coverage in Australia than ever before.

Biodiversity progress

The Biodiversity Convention came into force on 29 December, after Mongolia became the 30th country to ratify the agreement. The Intergovernmental Committee on the Convention on Biological Diversity met from 11-15 October in Geneva, the first such meeting since the Rio Summit. This followed on from the Global Biodiversity Forum held in Gland, at which scientific experts, farmers, activists, representatives of business and industry, and government and indigenous leaders, met to discuss the issues involved.

The thousands of different, genetically unique varieties of crops and animal breeds that are the product of 3,000 million years of biological evolution are being lost at an alarming rate. FAO estimates that since the beginning of this century about 75 per cent of the genetic diversity of animal crops has been lost. Some experts believe that up to 25 per cent of species now living will become extinct within a single lifetime. FAO chose the theme of Harvesting Nature's Diversity as its theme for World Food Day in October to focus on biodiversity and its contribution to food supply.

There are political issues involved, too. It is mostly the developing countries which

harbour the immense variety of species which may yield plant or animal species for helping to introduce disease resistance in crops, and provide much needed medicines. At the moment, it is mostly the developed countries which profit from their use.

The Biodiversity Convention has three objectives; conservation of biological diversity, sustainable use of its components – plants, trees, animals and other organisms – and fair and equitable sharing of the benefits which result from the use of genetic resources.

Climate convention timetable

The Climate Convention will come into force early this year. As of 12 November 1993, 39 countries had ratified the UN Framework Convention on climate change, and another 11 were expected to have done so by the end of the year, bringing the number to 50. The Convention comes into force three months after the 50th country ratifies, and industrialized countries must publish their national action plans within six months. The first meeting of the Conference of the Parties is scheduled for Spring 1995 in Berlin.

Among the proposals are that industrial countries reduce their 'greenhouse gas' emissions to their 1990 levels by the year 2000, although there is debate whether to set more ambitious targets.

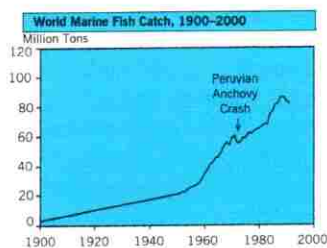
World fish stocks looted

Urgent action is needed to help nations agree on how

they might help save the world's deep sea fish stocks, according to a new FAO report.

The issues at stake include not just saving the fish themselves, but also the communities whose major income comes from fishing, the national industries which are threatened and the avoidance of 'fish wars' between nations.

In Canada, concern that the groundfish stocks were at historically low levels has caused the closure of four cod fisheries and dramatic cuts in the quotas of four additional fisheries. This follows the closure of a Newfoundland fishery in 1992, making a total of 45,000 fishermen and plantworkers in Atlantic Canada redundant. Canada is not alone in losing its fish stocks; FAO says most of the world's well-known marine fish stocks are being exploited far beyond the levels of sustainability.



The global fishing industry has become increasingly unprofitable as fish catches fall from their 1989 peak. The industry has over 1 million medium to large boats; according to FAO the costs are over \$124 billion, with revenues of only \$70 billion in 1990, with most of the shortfall being made up by state subsidies.

Vision of a sustainable world

Among the many and varied presentations at the Population Summit of the World's Scientific Academies in Delhi, in October (see Gadfly), one of the most visionary was that made by Professor Michael Chadwick of the Stockholm Environment Institute.

He argued that, by itself,

agricultural productivity was not a limiting factor for a future sustainable world, even with a population of 10 billion or more.

The indications were that the recent declines in food production in relation to population in Africa, for example, were essentially a problem of mismanagement of the land.

His vision of the 10 billion world was one which recognized the multi-faceted interdependency of a range of factors such as population, natural resources, technology, poverty, debt, management policies and the limiting factor of national self-interest.

Such a comprehensive view suggested the need to establish a political agenda – moving from moralizing to specific sovereignty issues and technology transfers.

His vision was of a World Economic Community "with regulated free trade, development assistance to the less developed 'regions', regulated, equitably-based access to resources, sustainable development objectives, environmental protection agreements, technology focused on low-waste and recycling to give low materials intensity and economic instruments to underpin this."

Sterilization breakthrough?

In a paper on Contraceptive Strategies for the Future, given at the same meeting, Professor R V Short of Monash University, Melbourne, Australia, reported the results of recent trials which could revolutionize the approach to female sterilization.

It may now be possible, he said, to convert female sterilization from a relatively expensive surgical procedure into a medical one which could be done much more cheaply by trained paramedical staff in a rural setting.

A large-scale field trial with 31,000 women volunteers in Vietnam has successfully built on the work by Dr Jaime Zipper in Santiago, Chile, who first demonstrated in 1970 that the intra-uterine

application of the cheap antimalarial drug Quinacrine to women would cause occlusion and fibrosis of the ovarian tubes, thus preventing pregnancy.

Seven pellets of the drug were placed in the lumen of the uterus on two occasions, two months apart, using a standard IUD inserter.

According to the Vietnamese researchers, the subsequent pregnancy rate per 100 women years of use was 2.6 per cent after one year of follow up, with no deaths, no evidence of increased ectopic pregnancies, and only eight serious complications.

However, IPPF's International Medical Advisory Panel recently concluded that Quinacrine sterilization cannot be recommended until the toxicological situation has been clarified and further clinical trials conducted.

■ A new range of loose fitting plastic condoms is now being tested in the United States and the United Kingdom, which will have many advantages over latex ones, said Professor Short. They would give more 'sensation', be stronger, more easily lubricated, store better and be re-usable.

Population consensus

Remarkable consensus on population priorities into the 21st century emerged from a two-day debate in the United Nations General Assembly in November on the preparations for the International Conference on Population and Development (ICPD) to be held in Cairo in September.

With few exceptions, both developed and developing countries agreed that a strong action-oriented plan of action should give special attention to the empowerment of women, reproductive rights and health, male responsibility and the sexuality and family planning needs of adolescents. The United States, New Zealand and the European Community asked for the issue of abortion to be specifically addressed.

Issues related to sustainable development, consumption

patterns and life styles, poverty and the effects of structural adjustment programmes, international migration and countries in transition toward industrialization should all be addressed. The role of non-governmental organizations (NGOs) should be underscored and specified. Russia and the Ukraine sought attention to declining populations and their social and economic consequences.

Delegates were commenting on a draft document now in preparation for the conference.

Dissent on the draft came from the Vatican, which reiterated its opposition to abortion and its support for natural family planning; from India, objecting to the emphasis on environment and to the high profile given to NGOs; from Sudan, which suggested that the focus on women could wait until the 1995 women's conference, and from Canada, which questioned the value of the proposed 20-year goals and warned against imposing these from the outside. Delegates were generally ambivalent on the question of how financial resources should be quantified and managed but were keen that steps to implement the plan should be clearly spelled out.

A revised draft document will be the principal item on the agenda of the next meeting of the Preparatory Committee in April.

The Family

1994 has been designated by the United Nations The Year of the Family. There will be no UN conference to mark the Year, but the Israeli Ministry of Science and Technology is sponsoring an international conference on The Family on the Threshold of the 21st Century in Jerusalem, from May 29–June 1.

■ Further details from ISAS, PO Box 574, Jerusalem 91004, Israel. Fax 972 2 868165.

Correction

The name of the professor of political science in Nepal quoted on page 13 of the last issue is Dr Lokraj Baral, not Gopal. Our apologies.

Coasts under pressure

The planet's coasts are in crisis, through the pressure of human numbers and activities. And the destruction of precious habitats looks like getting much worse, unless new approaches to coastal management can be found.

Don Hinrichsen reports.

The world's coastlines are sagging under an onslaught of humanity. Throughout much of the world, coastal zones are over-developed, over-crowded and over-exploited. Coastal waters are often horribly polluted with untreated (or partially treated) municipal and industrial wastes. Rivers bring in more pollutants, including chemicals and heavy metals, along with increasing loads of erosion sediment. Globally, little is being done to manage the crisis.

Management strategies, if they exist at all, often as not deal with only economic development along a thin strip of coastal land. Resource degradation is ignored and watershed management is mostly rhetoric (with a few exceptions, like the Chesapeake Bay). Although some 53 countries have drawn up coastal management plans, only a handful have been properly implemented. Many management strategies seldom get beyond the pilot phase; they are simply not high enough on political agendas.

Underlining the crisis of our coasts is escalating human numbers and their needs. If coastal demographics are alarming now, they appear downright scary by 2025. Already nearly two-thirds of the world's population – some 3.6 billion people – live along a coastline (or within 150 km of one). Within three decades, 75 per cent, or 6.4 billion, will reside in coastal areas; nearly a billion more people than the current global population.

Take two examples: China and the United States, the world's first and third most populous countries.

In the United States, 54 per cent of all Americans now live in 772 coastal

counties adjacent to the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Great Lakes. Over the past 30 years, coastal populations have grown by 41 million, faster than the country as a whole. The Washington DC-based Population Reference Bureau reports that, between 1960 and 1990, coastal population density in the United States increased from 275 to nearly 400 people per square km. By the year 2025, nearly 75 per cent of all Americans are expected to live in coastal counties; with population density doubling in some areas (for example, southern California and Florida).

The overwhelming majority of Chinese – 94 per cent – live in the eastern third of the country. Of China's 1.2 billion people, close to 780 million (nearly 67 per cent) reside in 14 south-east and coastal provinces and two coastal municipalities (Shanghai and Tianjin). Along much of China's coastline, population densities average over 600 per square km; in Shanghai they exceed 2,000 per square km.

More frightening, China's future population growth is expected to accelerate in its 14 newly created "economic free zones" and five "special economic zones" (SEZs). Not surprisingly, all of them are coastal.

According to Chinese demographer Tu Ping, Deputy Director of the Population Institute at Peking University, most of the growth of coastal populations is due to in-migration from the interior of the country. Nearly 100 million Chinese are thought to have moved from the poorer provinces in the central and western regions to coastal areas in search of better economic opportunities for themselves and their

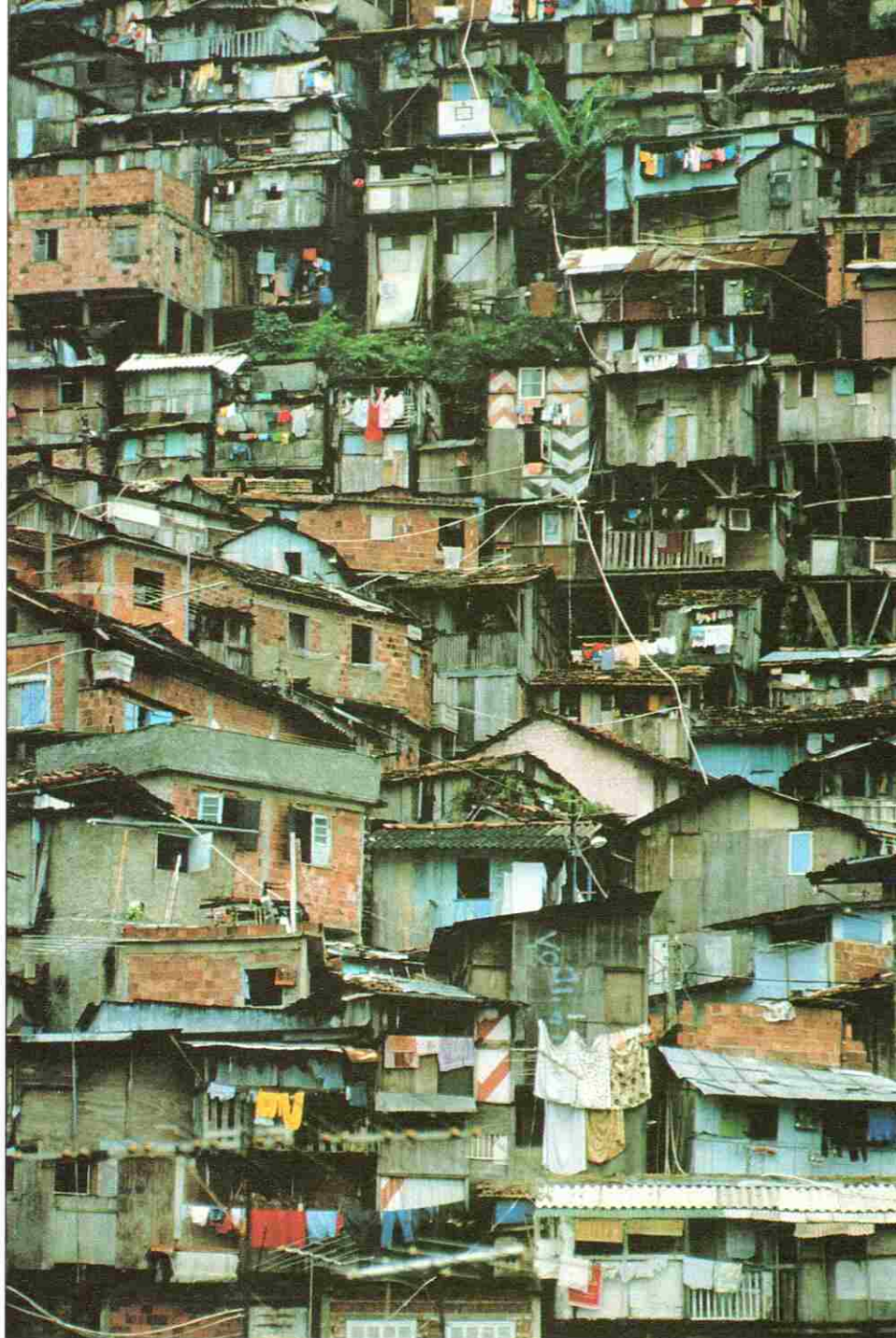
families. At any given time, somewhere between 30 and 60 million Chinese are on the move. The bulk of this large 'floating population' is concentrated in coastal provinces, particularly urban areas. (See page 10).

Throughout much of the world, urbanization trends are most worrying in coastal zones. Coastal counties in the United States already contain seven out of the country's ten largest cities. US demographers expect coastal towns and cities to keep on growing well into the next century (with the lion's share of this growth due to migration, not natural population increases).

Out of China's 456 cities with municipal status (as of 1990), 305 of them are coastal. Many of these cities seem to be growing at more rapid rates than elsewhere. Between 1982 and 1990, for example, Shanghai's population increased by 13 per cent; all but 5 per cent of that growth was due to in-migration from the countryside. China's largest city now has over one million migrant workers, most of them living in the poorer areas of the city in make-shift housing.

In much of the rest of the developing world, coastal cities seem to be exploding. In Southeast Asia, 65 per cent of all major cities – those with populations of 2.5 million or more – are located along coasts. In Latin America and the Caribbean, where 75 per cent of the population will be urban by the year 2000, 57 out of 77 major cities are coastal. With a few exceptions, Africa's largest cities are also coastal.

Future projections for Latin America are alarming by any standards. By the year 2025, the coastal zone from Rio de Janeiro to São Paulo is expected to be



Left: *Rio shanty.*
Below left: *City centre,*
Guayaquil, Ecuador.
Below: *Aerial view of Rio de*
Janeiro.



one large, continuous urban area. A similar process could be taking place along Chile's coast between Valparaiso and Concepción; this region already contains 75 per cent of the country's population on only 15 per cent of its land area.

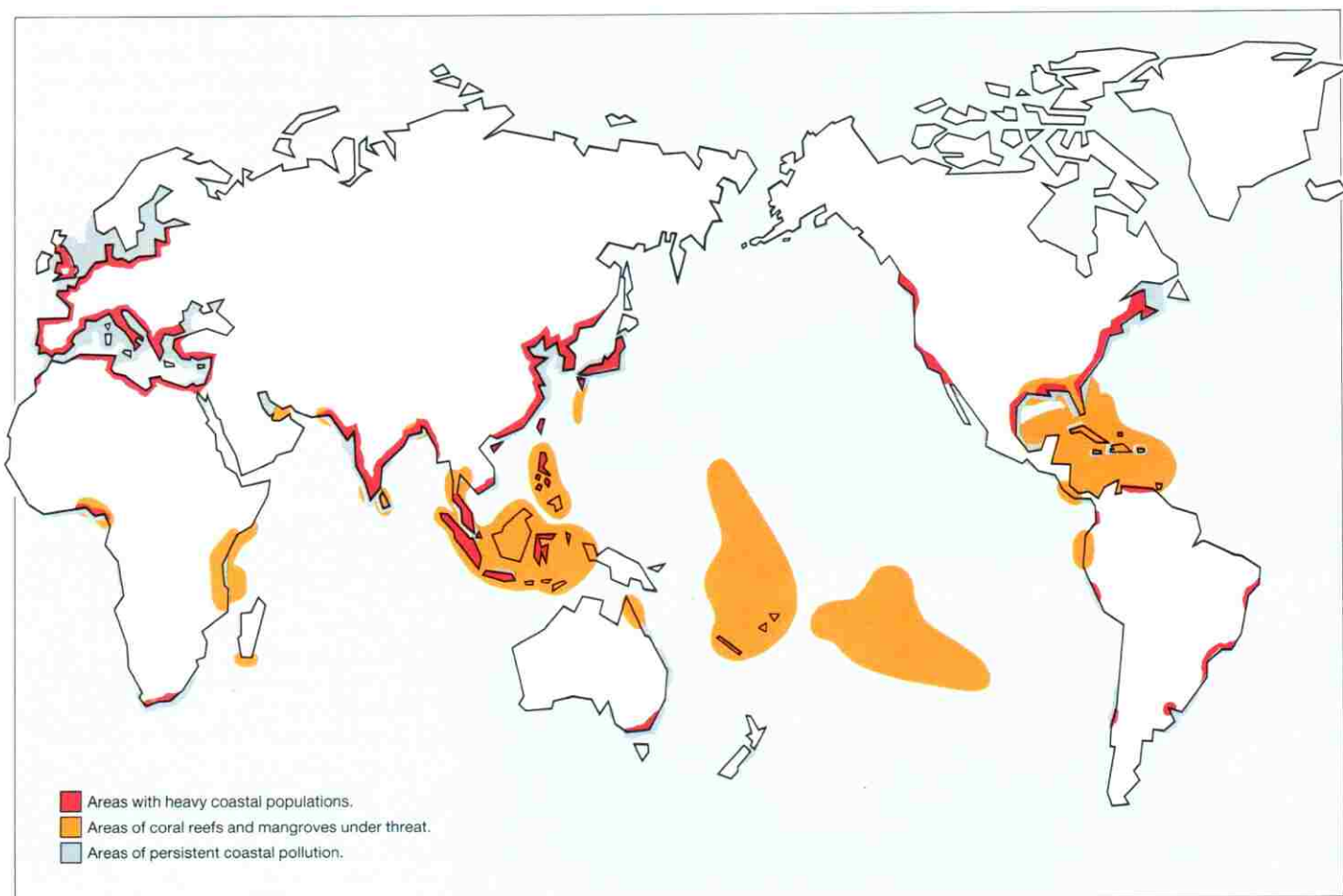
One of the most over-crowded coastlines in the developed world is the Mediterranean. By the turn of the century, the coastal zone is expected to have a resident population of 200 million, with 150 million sun-seeking tourists crowding its shores during the summer. If current trends are any indication, by the middle of the next century, the Med may have nearly 400 million residents (a significant proportion of them pensioners) and 250 million seasonal tourists. Without proper coastal management strategies in place, much of the northern rim, from Spain to Greece, might very well turn into one continuous built-up area, dominated by ugly urban sprawl, summer homes and tourist resorts (see page 17).

Tremendous population and development pressures have been building in coastal areas for the last three decades. These pressures have triggered widespread resource degradation. In much of Asia, Africa and parts of Latin America, coastal fisheries are chronically over-exploited. In some cases – the Philippines, Indonesia, China, Japan, Malaysia, India, the east coast of Africa, and the Caribbean – economically important fisheries have collapsed altogether, or are in severe decline. In many cases fishermen have had to turn into fish farmers, further degrading coastal resources by converting large areas of wetlands and mangrove swamps into fish and shellfish ponds.



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ROD SALMPLANET EARTH PICTURES



SOURCES: WWF ATLAS OF THE ENVIRONMENT/UNFPA/UNEP
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In Indonesia alone, over 10,000 square km of mangroves have been converted into brackish water ponds (called *tambaks*) for the cultivation of shrimps, prawns and fish.

"Nearly all Asian waters within 15 km of land are considered over-fished," observes Dr Ed Gomez, Director of the Marine Science Institute at the University of the Philippines in Manila. Despite a general ban on trawlers in

near-shore waters in most of the region's countries, violators are legion. Korean trawlers routinely enter Manila Bay, for example, in stark violation of existing regulations; Korean skippers bribe the Philippine coast guard to let them fish there.

Fisheries are in decline not only because of over-fishing. Critical coastal resources, such as mangroves and coral reefs – among the most

productive and biologically diverse ecosystems on earth – are being plundered in the name of development. Together, they provide vital habitats, feeding grounds and nurseries for literally tens of thousands of species of fish, shellfish and invertebrates.

Although there are thought to be around 240,000 square km of mangrove swamps throughout the world, this seemingly impressive figure con-

Left: Salt lake on the edge of the Aral Sea.

Below: Beach sand mining and erosion, Oman.

Far left: Shantytown, Guayaquil.

Right: Downtown San Francisco.



stitutes perhaps only half of their original area. Clear-cutting for timber, fuelwood and woodchips, conversion to fish and shellfish ponds, and expansion of urban areas and agricultural lands has claimed millions of hectares globally. Of the Philippines' original mangrove area, estimated to be between 500,000 and one million hectares, only 100,000 hectares remain.

There are some 600,000 square km of coral reefs throughout the world's tropical seas. Unfortunately, these species-rich ecosystems are suffering widespread decline. Dr Clive Wilkinson, a coral reef specialist working at the Australian Institute of Marine Science, has estimated that fully 10 per cent of the world's reefs have already been degraded "beyond recognition". Thirty per cent are in critical condition and will be lost completely in 10-20 years; while another 30 per cent are threatened and will be lost within 20-40 years. Only 30 per cent of the world's reefs are in stable condition; those removed from inhabited areas or otherwise too remote to be exploited.

Of the 109 countries with significant coral communities, 93 are damaging them, according to a survey carried out under the auspices of the United Nations Environment Programme (UNEP) and the World Conservation Union (IUCN). In over 50 countries coral is being smothered by erosion sediment washed off the land; largely the result of massive deforestation. In nearly 70 countries, reefs have been badly affected by dredging and land reclamation, or the building of harbours, airports and tourist resorts. In much of Southeast Asia and East

Africa they are being dynamited and poisoned by fishermen, in desperate efforts to put food on the table, or mined for use as building materials.

Halting such destruction is paramount if even a fraction of these genetically valuable resources are to be preserved. Nothing less than integrated coastal zone management strategies are needed; strategies that take account of population growth and distribution, urbanization trends, consumption patterns, generation of wastes and the use (and abuse) of available resources, among others. Resource management must replace resource exploitation.

So far, less than 1 per cent of the world's mangrove forests receive any kind of protection. Coral reefs are slightly better protected because of their importance for tourism. But only about half the countries with reefs have any reserves to safeguard them; and in many cases such reserves are under-funded and under-staffed.

Turning rhetoric into reality will not be easy, nor cheap. UNCED's Agenda 21 devoted one entire chapter to the management of seas and coastal areas and the rational use of marine resources. However, architects of this document estimated that it would cost around \$6 billion a year until the turn of the century in order to finance comprehensive coastal management strategies that are more than words on paper. In a global recession, it is hard to see where money on this scale can be found.

Coastal zones are in crisis not only because of a lack of funds or political shortsightedness. Coastal zone management is downright difficult to implement because it requires the institutional capacity to manage both

land and near-shore waters in an integrated, comprehensive manner. Few countries, even in the industrialized world, are capable of such strategic planning and management. In the United States, where each coastal state has enacted coastal zone management plans, the results are uneven (in some cases disappointing). The developing world has barely begun the process of regulating coastal development and managing common resources. And their institutional capacity to safeguard remaining coastal resources is limited.

Despite the gloomy outlook, management plans which start on a smaller scale, in specific areas, stand a greater chance of success. In fact, one thing is common to all successful management regimes: the involvement of local people in salvaging their resources. Where public participation is strong, experience shows that coastal zones can be managed sustainably, even in poor areas with limited financial resources. Funding is essential, but even more important is the need for continued community involvement and the will to change destructive practices into sustainable ones. ■

This article is based on extensive travels and research for Don Hinrichsen's forthcoming book, Living on the Edge: Coasts in Crisis, to be published by Island Press in early 1995. The book will take a comprehensive look at all of the world's regional seas and coastal areas in an attempt to present both the problems besetting them and possible solutions. The book is supported by grants from the Swedish International Development Authority and UNFPA.

Facing up to sea rise

There is an urgent need to understand our coastal environments better, if we are to plan for climate change and a rise in sea levels, says *John Pernetta*, in this review of the dangers ahead.



Living by the sea has always been a more attractive proposition than living inland; the milder, less extreme climate; access to a wide variety of fish and shellfish; and an easy means of transport and communication, both inland via rivers, and along the coast in sheltered waters, has meant that most coastal sites were developed early in human history.

In addition, most fertile agricultural land is found at low altitudes, in coastal plains and river valleys with the result that now over 60 per cent of the world's population lives within 150 km of the coast. At present, as much as 80 per cent of the world's fish catch comes from within 19 km of the shore and for many developing countries this forms the sole source of protein in the diet of their rapidly growing populations.

Add to these numbers, the millions of visitors who annually visit small tropical islands and coastlines such as those of the Mediterranean to enjoy the sun, the sand and the sea, and one can see that the coastlines of the world are

important for both the survival and recreation of a large proportion of the world's population.

Standing on the high cliff overlooking the sea the prospect of a rise in sea level of a few centimetres per decade does not appear to be a daunting prospect. When viewed from a low-lying delta such as that of Bangladesh or small coral island in the Maldives this prospect appears quite different.

The most recent estimates of future sea level rise as a consequence of climate change suggest that by the year 2050 global mean sea level will rise around 38 cm although this could be as low as 24 or as high as 52 cm. The consequences of such a rise will be quite different in different places but the work of the Intergovernmental Panel on Climate Change (IPCC) suggests that the consequences could be very important for many areas and countries.

In general the impacts of future sea level rise, can be divided into those which are direct, such as inundation of low-lying coastal land, and increased

rates of erosion along the world's coasts and shorelines; and those which are indirect such as loss of fresh groundwater resources through rising water tables and intrusion of saline water into aquifers. In combination such changes may alter the suitability of coastal areas for settlement and agriculture and in some cases render areas less productive than they are at present.

The small atoll islands of the Pacific and Indian Oceans for example are little more than piles of coral sand perched on top of coral reefs. They are unstable and the sand of which they are composed may shift around the edges of the island on a seasonal basis as the prevailing wind directions change. The plants and animals of such islands are generally salt tolerant and the range of diversity is generally low, only 53 genera of plants are found in Kiribati and only 753 species of plants are known from the Maldives, of which two-thirds are cultivated species.

The people living in such environments have developed maritime cultures and are dependent on the sea for much of their livelihood. They have however, learnt to adapt to the relatively harsh conditions on land. Their agriculture is based on the culture of root crops such as taro, in pits which are dug down to the freshwater lens and filled with organic material. On islands such as those of Kiribati, Tuvalu, the Marshall Islands and French Polynesia not only are the agricultural crops dependent on this small freshwater lens but this forms the sole source of drinking water available for the population.

On small islands the lens of freshwater which floats on top of the underlying sea water may be only a few centimetres thick and its volume depends upon the area of the island and its maximum height above sea level. The smaller the island, the smaller the freshwater lens and hence the more vulnerable the population to a slight rise in sea level.

In the Maldives for example the total land area, which is estimated at 300 km² is divided between 1,200 small islands many of which have no permanent freshwater lens and support only salt tolerant plants including coconuts. The maximum height above sea level

D. SANSON/PANOS PICTURES

in the Maldives is probably no more than two to three metres and more than 80 per cent of the total land area is below one metre in altitude. A small rise in sea level will not only threaten the stability of these tiny, fragile islands, but will also dramatically reduce the volume of freshwater available, both for human consumption and for agriculture.

It is important to recognize however, that it is not only the small island nations which are threatened by the projected rise in sea level. Low-lying countries such as Bangladesh and densely populated deltas such as that of the Nile are equally threatened. In the case of Bangladesh the threat stems not only from the consequences of the rise in sea level but from changes in the frequency and severity of flooding events, which may increase in a warmer world.

Bangladesh lies in the delta areas of the Ganges, Brahmaputra and Meghna rivers and indeed most of the country is formed of the sediments deposited by these rivers in the coastal plain. Flooding occurs from three main causes: sheet flooding of the flat low-lying areas occurs during heavy rains in Bangladesh itself; riverine flooding occurs when the rivers over-top their banks due to heavy rainfall in the catchment areas, most of which lie in the Himalayas, outside the country in India and Nepal; and, coastal flooding which occurs when hurricanes and tropical storms result in surges along the coast.

The consequences of flooding in densely populated Bangladesh can be both dramatic and severe with hundreds of thousands of people being made homeless and tens of thousands of people drowned. Any increase in the frequency and severity of such flooding events will result in increasing dependency of the country on outside aid.

Recognizing the potential threat of climate change the United Nations Environment Programme and World Meteorological Organization established the IPCC. This is a body of eminent scientists nominated by governments to examine the best available scientific evidence concerning climate changes; to assess the nature of future impacts; and, to

identify response options available to governments. They suggest that there are three categories of response to sea level rise.

■ **Retreat:** that is to discourage investment and development in vulnerable areas and to shift the emphasis of development away from coastal regions. Such an option is not possible for many countries where the bulk of the land is low-lying and vulnerable, and the density of population is high.

■ **Defence:** an option well demonstrated by the Netherlands where complex defensive structures and continuous pumping maintains the water level below the ground surface for large areas of the country which are actually below sea level. Such an option is expensive, not only in terms of the capital cost of building defence structures but in terms of the recurrent costs of continuous pumping to maintain dry land.

■ **Accommodation:** this appears to be the only realistic option for many developing countries. Such a response depends upon changes in the use of

Left: Part of the Maldives archipelago.

Below: Dhaka – shanty camp by water's edge.



coastal areas, in lifestyles and in construction. For example as low-lying paddy rice fields become increasingly saline, changes to land use from rice cultivation to the mariculture of prawns and fish may be a viable way for coastal populations to continue to live and survive in the same areas.

It is clear that what is required in planning for climate change and sea level rise is not only a close collaboration between scientists, engineers and political decision makers but also a better understanding of the processes which occur in coastal environments. Why are some coast-lines more stable than others? What causes mangroves to extend further seaward in one area and retreat elsewhere? Without such an understanding of the natural processes we are unable to make accurate predictions concerning future conditions and without predictions we cannot plan and manage the use of coastal areas and resources in a rational manner. ■

John Pernetta is on the staff of the UN Environment Programme, Nairobi.

Farmers flock to coastal cities

China's coastal cities are growing fast, fuelled by migration from the countryside. *Zhou Meiyue* travelled from Beijing to Shanghai to meet experts on this phenomenon and *Susan Mulley* in Hong Kong talked to Dr Yue-man Yeung at the Chinese University there about some of the environmental consequences.



Nineteen-year old Xiao Sun came to Shanghai from a poor village in east China's Jiangsu province. She had agreed to work as a nanny for an intellectual's family. Sun impressed her employers with her diligence and intelligence, and later married the intellectual's son.

The lucky Cinderella is one of the 1.34 million immigrants swelling the population of Shanghai, and one of the 21.35 million transient workers in China who relocate for at least a year, according to China's fourth census conducted in 1990. And when those who work away from home for shorter periods are included, the number approaches 70 million.

In the old days, farmers were discouraged from moving to cities on their own. The rigid urban residential registration system made it very hard for them to leave their home villages. Today, more and more farmers swarm to cities to seek jobs in construction, in business, or in the service sector, and form a spectacular 'floating population'. They are normally drawn to one of the country's developed cities, especially those on the coast.

Rural dwellers who account for nearly 80 per cent of the country's 1.17 billion people, constitute about half of the floating population, says Professor Zhang Qingwu, a population expert who teaches at the Chinese People's University of Public Security. "And there are also factory and office workers who move from the under-developed inland to relatively developed coastal cities where a more active market economy promises more opportunities, normally with higher pay."

The reasons for recent increases in migrant or seasonal workers are twofold, explains Zhang. The imbalance between economic development levels in rural and in urban areas, or between inland and coastal cities, is the most obvious incentive. Also, more lenient governmental policies have allowed greater mobility over the last decade. While the third census in 1982 showed that China had a floating population of 6.57 million, the 21.35 million reported in 1990 represents an increase of 225 per cent.

Statistics show that the eight provinces and municipalities reporting per capita income over 1,500 yuan (US\$245) a year are mostly located along the coastline, and count 13.68 million non-natives in their total population of 278 million. These areas include Shanghai, Guangdong province, and of course Beijing.

"That works out to 49 transient workers for every 1,000 people," says Zhang. "On the other hand, there are only 17 immigrants for each 1,000 residents in 11 inland provinces such as Guizhou, Yunnan and Tibet, where the per capita income is below 1,000 yuan (US\$167)."

Most immigrants from the countryside could tell a very different tale from Xiao Sun. Hard work, fierce competition and poor housing is normal. They must also cope with loneliness, uprooted as they are from friends and loved ones. Each day can be a harsh challenge. But most of them manage to survive.

Men form rather more than half of the floating population. Zhang interprets this figure in terms of Chinese social tradition.

"It indicates the old conception of 'men in charge of the external affairs and women of the internal' still holds true. Also, men can do the heavy physical labour needed for construction projects, whereas women are physically weaker, and often have less education. They are usually left at home to attend household chores and raise children," says Zhang.

But many women farmers have migrated to serve as baby sitters or housekeepers and waitresses in coastal cities, where women also dominate the secretarial work in companies.

As for age, says Zhang, the old (over 60) and the young (under 14) now amount to fewer than 20 per cent, in contrast to 30 per cent in 1980.

While most transient workers shift from agriculture to manufacture or the service industry after they move to the city, the floating population generally has an obvious impact on coastal cities' economic social life. Their growing presence stimulates the development of ancillary productive services. Their active involvement in the business at

free markets offering agricultural products improves the urban supply and enriches citizens' daily diet. And urban construction benefits from the employment of a large number of strong farmers.

Zhang points out that the population shift can also benefit rural areas. The farmers' departure for the city helps relieve the burden of surplus rural labour, and the money, technology and know-how brought back from the city

Left: Today, more and more farmers are leaving the land for the cities.

Below: Crowded market street in Canton.

help promote the rural economy.

To many population experts' delight, urban immigration also helps enlighten a number of young countrywomen about contraception and family planning, says Professor Zhuang Qiuhui, deputy director of the population Research institute of Xiamen University, in Fujian province.

"When they find so many urban women choose to postpone bearing a child, or choose to have only one child





in order to have more time and energy to develop themselves, the rural women come to realize that the whole family, young and old, will benefit from a family planning programme."

Yet there are migrants who ignore the official advocacy of "one child, one family" to give births to "black children" without residence cards, Prof. Zhang Qingwu says. And a large floating population spells other troubles for a heavily populated city.

He elaborates that an influx of new residents strains a city's resources. Housing, water and electricity supplies, transportation, telecommunication, environmental hygiene, food supplies and education facilities, all must increase to meet growing needs. Urban planning and construction also have to keep pace. The crime rate climbs too. Among the newcomers are criminals who prey on local residents.

Meanwhile the floating population increases the administrative load in municipal departments, such as local administration, public security, household registration, urban planning, street vendor administration, labour and family planning management.

Still, most experts believe that, re-locating from the countryside to the cities represents social progress and adds to the productive work force.



Above: Crowded accommodation in Shenzhen.

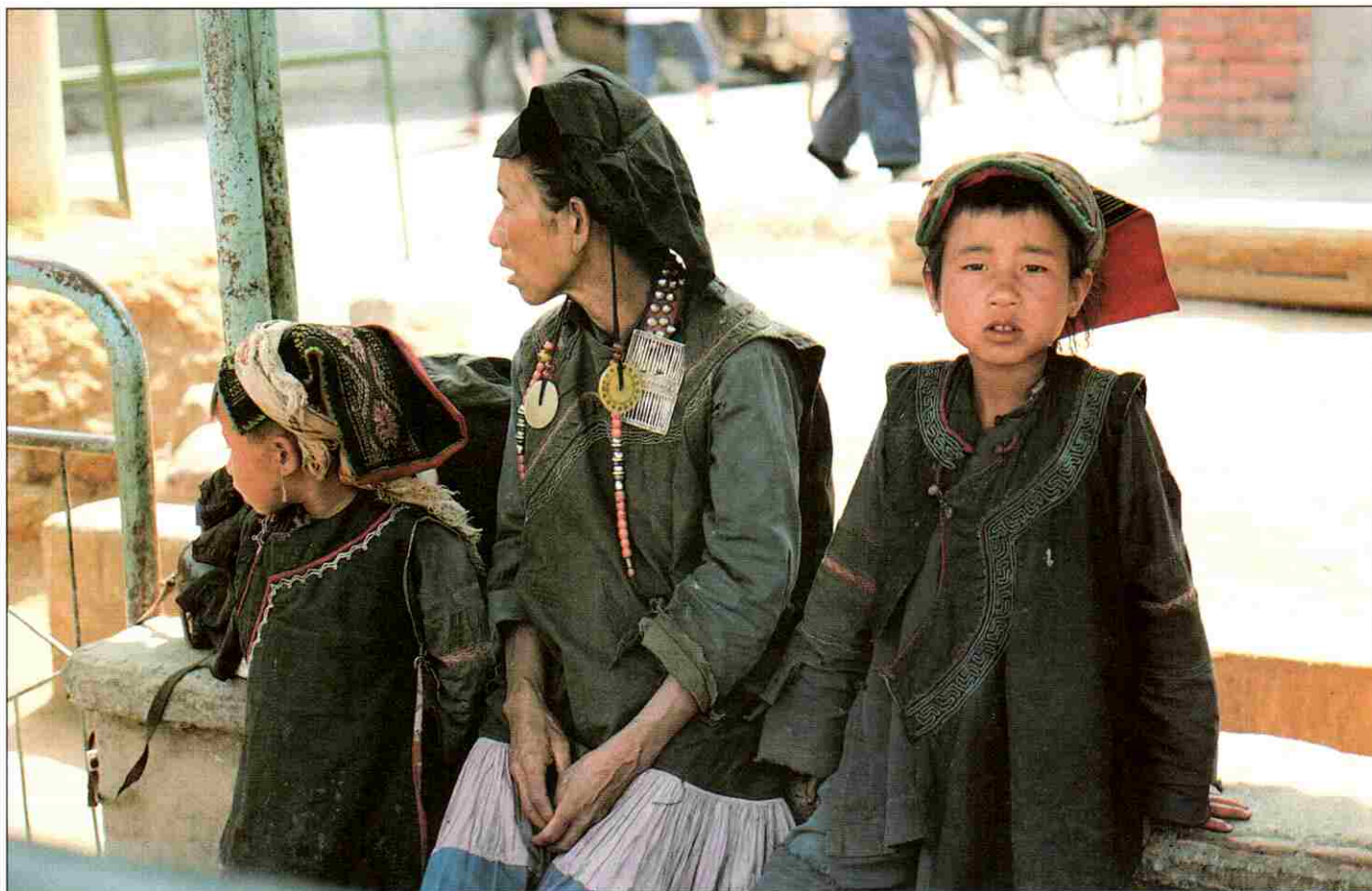
Right: Minority populations are also on the move.

They suggest that a flexible policy be taken to deal with the fluid population.

While rural enterprises should be encouraged to develop to absorb as much rural labour as possible, say Zhang Yunfan and Zheng Guizhen, researchers at the Population Research Institute of Fudan University, rural and urban authorities should cooperate in addressing problems caused by increasing numbers of transient workers, with the aid of the central government.

Guangdong province, where over 3 million migrants have now resettled, has set an example. Fang Gang, director of the provincial Family Planning Commission, says that most of the immigrants came from Sichuan and Hunan, and five counties of the two provinces have established offices in Guangdong to supervise their former residents. A major administrative concern is the birth rate.

Since farmers regularly flock to cities after the Lantern Festival (on the fifteenth of the first lunar month), the press should try to forecast employment opportunities for the farmers who have no idea what awaits them. Such information could "help them get rid of their blindness," says Professor Gui Shixun of the Population Research Institute of East China Normal



University, and an adviser to the State Family Planning Commission.

Gui, who is one of the leaders of the UNFPA's programme for "immigrants to China's Economic Development Zones," and who is vice chairman of the Shanghai Population Association, believes that in outlining local population development strategies, administrators of the economic development zones should take into account the gender imbalance among migrant urban workers. Young women form the majority of young immigrants in development zones like Shenzhen, which could give rise to a series of social problems; in other development zones where construction workers and labourers are needed, young men form the bulk of non-natives.

"In order to achieve a balance between the sexes," says Gui, "the government should adjust the industrial structure."

More stress should be placed on cultural development in the development zones, he says. In particular, he sees a need for improved telecommunications, traffic and transportation, education, and hygiene, which means higher levels of investment. Whether long-time residents or recent arrivals, young workers need opportunities to improve themselves and to enjoy their

spare time.

He believes the government of the development zone should try to shift the emphasis from labour-intensive industry to technology-intensive enterprises. Professor Jiang Zhixue of Liaoning University who has investigated the Dalian Economic Development Zone, feels the key lies in seeking better-trained workers.

To enhance administration among the migrants, a special blue residence card is being issued in some development zones, such as Xiamen (Amoy). Those who have invested 500,000 yuan (\$83,333) or purchased a two-room flat in Xiamen Special Development Zone, are entitled to this residence card, after paying a registration fee of 15,000 yuan (\$2,500). The residence card will afford holders the same rights and obligations as the permanent residents. The card expires as soon as the owner moves out of the zone.

"Since the tentative stipulations were announced last May, more than 1,500 people have applied for and received the blue cards," says Zhuang.

The residents' programme is administered by a division of the zone's public security bureau. And the quota for new residents is set by the municipal planning commission.

To provide for China's vast popula-

tion, whether rural or urban, and to implement family planning policies, is a Herculean task. It calls for co-ordination of various governmental sectors, including public security, industrial and commercial administration, tax offices, family planning authorities, and public security services, from the national level to local levels, says Professor Gui Shixun.

Gui points to Bao'an of Shenzhen, a county where the immigrants outnumber the permanent population by three to one. "They have established a comprehensive management office which co-ordinates public security officers and industrial and commercial administrators in a way that commands the respect of the newcomers."

Gui and his colleagues believe that relevant laws and practices should be extended to further regulate the floating population. Since the State Family Planning Commission issued "Family Planning Regulation Methods for Floating Population" in December, 1991, some 20 provinces and cities have worked out detailed rules to ensure the fair operation of the legislation.

"The more generally authorities apply appropriate measures, the more successfully they can supervise immigrants, while helping the immigrants maintain their rights," Gui says. ■

Time bomb in the cities

Anshan, in Liaoning province, suffers like most Chinese cities from air pollution.



Susan Mulley reports from Hong Kong: "The closest analogy to China's urban environment today are the growing industrial cities of 19th century Europe and North America: largely uncontrolled combustion of poor quality coal is releasing huge quantities of particulate matter, sulphur dioxide and carcinogens into the air, and waste waters are dumped untreated. Open spaces are rare, greenery is scarce, living conditions are crowded, and the places keep growing at fast rates, promising more congestion and degradation to come."

The words are those of Vaclav Smil, and they are quoted by Dr Yue-man Yeung, Professor of Geography and Director of Asia-Pacific Studies at the Chinese University of Hong Kong, who sees China's coastal cities as both an engine of growth and a potential disaster.

Apart from the massive use of coal, especially in winter, causing acid rain to fall throughout China, solid waste disposal is becoming a major problem, according to Dr Yeung. Its rate of increase is far ahead of population growth, with garbage production expected to reach 174 million tons by the year 2000.

"The situation has reached crisis proportions in China's largest cities, where both municipal sewage and industrial waste water is dumped largely untreated into the rivers and sea.

In Tianjin, 1.26 million tons of untreated waste are dumped every day and the Hai He river is heavily polluted", says Professor Yeung.

The smaller towns and historical cities in the Yangtze delta, such as Suzhou and Hangzhou, have not escaped, and the whole of China's coastal system is affected, with air and water pollution the main concern, Dr Yeung said. "If we are not careful, we will create a time bomb."

The problem is not simply one of legislation, according to Dr Yeung, since laws on the protection of the natural environment, ocean pollution and water pollution were enacted in 1979, 1982 and 1985 respectively. "People seem to get around the law. Industries are not policed and the legislation is not enforced."

The major culprits include tanneries, dyeing and bleaching, and petrochemicals. The problem is made worse by the relocation in China of such industries from Hong Kong and Taiwan – frequently driven out by tougher environmental protection measures.

"If China really wanted to enforce legislation, she could. But very few firms are prosecuted or, if they are, they receive minimal fines which are passed onto the consumer as overheads," says Dr Yeung.

"The crux of the pollution spiral is a human one, related to the Chinese management structure. Higher layers of

bureaucracy cover up inferiors in their enthusiasm to maintain production targets. Corruption is another big problem, though I am not sure whether this is a direct cause or a contributing factor to the degradation of the environment. Those who are meant to be policing the rules can be persuaded to turn a blind eye.

"Other stumbling blocks include the lack of rural-urban integration, the financial burden of waste treatment, the problems of recycling, the push for rapid development at all costs, and the inflexible administrative set-up. The real problem is not affluence but inefficiency."

Professor Yeung calls for a "multi-pronged" approach, starting with the young people who have to be more aware they are causing damage.

"You can't depend on the law to control people. You have to change their outlook and teach them how fragile their environment is. Once it's ruined you cannot bring it back. China has not done enough in terms of environmental education. It needs a public awareness programme to reach government officials, schools, firms and individuals."

Professor Yeung is co-author with Xu-wei Hu, of China's Coastal Cities: Catalysts for Modernization published by the University of Hawaii Press, 1992.

Mending the Med

In the 40 years from 1985 to 2025 the population of the Mediterranean countries may grow by 200 million. The tourist invasion, mainly to its seaside, may more than treble to 370 million. The impact on its environment could be cataclysmic, unless we act now, says *Michel Batisse*, President of the Mediterranean Blue Plan, in this exclusive report.



Some 50 million tourists from the North of Europe love spending their annual holidays on the Mediterranean coast, enjoying the sun, the sand, and the deep blue sea. Many also cherish the region's harmonious landscapes and its unparalleled archaeology, history and culture.

A couple of decades ago, these tourists were disturbed to find tar balls, plastic bags and algal blooms in the blue waters. The media promptly declared the Mediterranean Sea was dead. This was clearly a gross exagger-

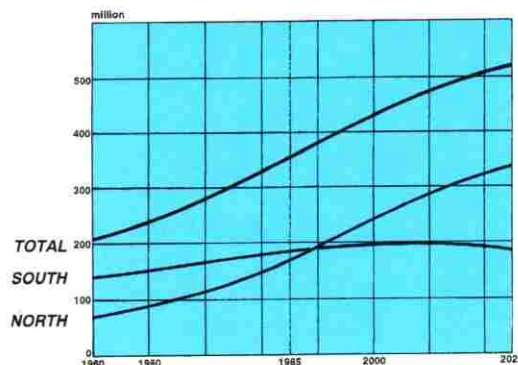
ation, but it triggered a welcome move for government action.

Thus, the Barcelona Convention to protect the Sea against pollution was signed in 1975 and a concerted effort began to turn law into action. Wisely, the Action Plan did not strictly confine itself to marine pollution, but started projects aimed at curbing the land-based sources of the damage. Inevitably it began to look, too, at the social and economic factors which govern the coastal environment.

One of these projects was the Blue Plan. Its purpose was to analyse the

complex interactions between population, natural resources, environmental degradation and the economic development of the whole region. It had also to look forward to future evolutionary changes until the year 2025.

This exploration of where the Mediterranean Basin might be going was done through a series of scenarios, based on consistent sets of assumptions, leading through logical pathways to contrasting images of possible futures. The assumptions took in the international economic context, the demographic situation and national



Population in the Mediterranean countries: Trends 1950–1985 and average scenario 1985–2025. The rate of population growth in the Mediterranean countries as a whole tends to level off as from around 2000. The North is already heavily developed (see picture below). The population of the southern and eastern countries exceeds that of the northern countries as from 1990.

SOURCE: UN/BLUE PLAN.

development strategies.

Depending on the scenarios, the project found that the total population of the Mediterranean countries would rise from 357 million in 1985 to between 515 and 575 million in 2025. The difference (which concerns, essentially, countries in the south and east of the region) may not appear large. But it does represent roughly the present population of Egypt, or Turkey.

The countries in the north, which accounted for two-thirds of the population in 1950, will only account for one-third in 2025 (see graph). The

ment tensions.

In all the scenarios, this situation in the developing countries of the basin is aggravated by rapid urbanization – something that has already taken place in the north. Moreover this concentration of people will be concentrated in the narrow, mountain-lined coastal strips characteristic of most of the Mediterranean. North and south, people and economic life (including transport and leisure) are crowding into these coastal regions which are subject to conflicting uses and mounting pressures. This has major consequences for water demand, waste disposal and sea and land use. But it is aggravated, above all, by tourism.

The coastal regions today receive about 100 million international and domestic tourists every year. Our scenarios show that, under poor economic conditions, this would rise to 170 million by 2025. But in a sustainable development scenario, paradoxically, the number could reach 340 million, half of them holidaying in their own country.

From a social and cultural viewpoint, tourism can be a blessing or a plague, depending on how it is practised. Its environmental impact, in terms of built-up space, solid and liquid waste, and water consumption is particularly strong on the coastal fringe, including wetlands. They are aggravated by extreme concentration in summer months, a time of low water supply and tinder-dry forests.

Most countries have little choice, however, but to depend on tourists for their balance of payments and as a source of hard currency for essential food imports, now or in the future.

Thus a strong conclusion of the Blue Plan is that their most precious asset is their shoreline and nearby hinterland, provided that this environment is effectively protected. This fragile zone is bound to concentrate not only tourism, but other social and economic activities.

The problem is that much irreversible damage has already been done in these areas in the last few decades, with erosion and deforestation upstream and concrete surfacing and erratic construction near the shore.

Unfortunately, well planned, integrated, coastal management is an art which no country – in the Mediterranean, or elsewhere – has so far excelled.

Given the heavy weight of demographic trends, the inertia of agriculture and industrial activities, and the slow response of societies in the past to modifying their ways, it is now that “a change of scenario” towards sustainability has to take place. Any delay will make future measures more difficult and more costly. And delay will lead to irreversible degradation in land use, ecosystems, coastal landscapes and urban environments, let alone the ensuing pollution of fresh water and the sea itself.

The alternative scenarios of the Blue Plan have signposted the need for resolute north-south co-operation, which would allow the developing countries of the Mediterranean to overcome some of the formidable difficulties they face, and which are already destabilizing some of them. The European Community has a clear challenge to meet here. It could most appropriately be accompanied by south-south co-operation led by the Arab countries.

The protection of the marine environment was the starting point for a pan-Mediterranean co-operative effort. Unless this expands to help the developing countries of the region to meet the basic needs of their growing and destitute populations, it is not only the marine environment, but the entire Mediterranean world could face social and ecological disruption in the foreseeable future.

Time is of the essence if this cataclysm is to be avoided. The environment and development issues in the region are now clear. They threaten long-term peace and security. The Mediterranean countries have the potential to counteract the danger if they act rapidly and collectively. But can they find the political will this time? ■

Michel Batisse, former Assistant Director-General for Science at UNESCO, is President of the Mediterranean Blue Plan, located in Sophia-Antipolis, France.



population in the south and east, from Morocco to Turkey, will grow to five times the 1950 figure. Where there were fewer than two Turks to one Greek at that time, there could be as many ten in 2025.

A fall in fertility rates is naturally expected in the south, especially under certain scenarios involving big changes in the education of women and in economic conditions, but its impact will only be felt towards the end of the period. A recent updating of actual population figures shows that slight fertility reductions in some countries are offset by slight increases in others, leaving the 1985 projections valid for the region as a whole.

The north-south population shift has other consequences. While northern populations with declining fertility rates will become progressively older, the southern and eastern ones will be young. The numbers arriving on the labour market will largely exceed those leaving it, with a maximum gap around 2020, creating considerable employ-

DYLAN GARCIA/PANOS

Coral's hidden riches



The treasures of the planet's coral reefs are even richer in some respects than those of tropical rain forests, but because they are largely hidden beneath the waves, the damage they are suffering from human activities is not seen.

Rodney Salm reports.

Looking out from land over a reef on a calm sunny day, one may be impressed by the kaleidoscopic patterns and colours, but that inscrutable sea surface hides the real riches from view. It hides the colour, variety and vibrancy of reef life, the architecture and age of the coral colonies, the values and services of the reef system.

If bees were to emerge only under-cover of darkness, we might mistakenly fell a hollow tree hung heavily with honey, not recognizing that its trunk hid a hive of industry. So is it too with reefs. The planners and decision makers who authorize channel dredging, marina construction, and placement of polluting industries or logging upstream of reefs may be unaware of the consequences.

The vigour of the reef system, its rich diversity of life, its fish production, its value for tourism and as a natural breakwater, are all hidden from their view. That these values may be diminished or lost altogether, along with the livelihoods dependent on them, is

difficult to argue when they too are concealed from direct view.

The people who live off – and sometimes over – coral reefs appreciate the largesse, but do not always understand the need to manage these productive yet vulnerable environments. When they do understand, they may be helpless to do anything but declare war on sustainability in the interests of their immediate survival. Fishes are food, and food is life. If it takes explosives to feed the family today, so be it.

It is popular to use tropical rain forests as the yardstick by which to compare biodiversity. But these forests are the coral reefs of the land, similar in the variety of species, but poorer in the number of higher taxonomic levels, such as phyla. We content ourselves with attention to coral reefs as centres of global biodiversity, without even knowing what diversity these hold for us. What we are really saying is that the species of use and value to us *at present* are concentrated in or dependent on coral reefs. We could include among these those elements of the underwater

scenery that are merely attractive to look at. They draw hundreds of thousands of tourists each year to reef areas of the world, providing the life blood of their economies.

But what of the many other creatures of the reef that have no direct use at present? Many of these reef residents have highly active biochemical compounds that make them distasteful or poisonous to potential predators, or which they use to paralyse their own prey. A mere fraction of these have been investigated, and many found to have pharmaceutical value. Their applications include use as anti-cancer drugs, antibiotics, anticoagulants, and from a different perspective, the boulder coral has been used to develop a model for bone implants.

Tourism is widely recognized as an important use of coral reefs that has been the subject of detailed economic study. Yet, the role of the reefs in shielding coastlines from the scouring effects of surf is not well appreciated, except by the coastal fishing communities who shelter their boats in the calm



Left: Blackspotted sweetlips and cabbage coral, Oman.
Below: Yellow featherstar in purple gorgonian.
Right: Coral reefs in Indonesia and Fiji.
Below (insets): Sea-bed litter, and fishing net killing coral.

waters of reef lagoons. In these days of concern for sea level rise, and spreading beach erosion, we ought to look to reefs as protectors of numerous coastal villages and hotels built on beaches and the coastal lowlands behind them. Many beaches are themselves built of sand generated from reef corals and the myriad minute chalky creatures living among them.

People are the principal force behind the need for reef conservation, standing to benefit considerably but also being the principal cause of reef loss. People threaten reef biodiversity by direct exploitation and overharvest, and habitat destruction (this includes damaging fishing techniques especially the use of explosives, coral mining for lime production or construction, dredging and reclamation adjacent to reef systems, industrial and sewage pollution, siltation resulting from inland land use practices, erosion caused by shoreline development, or dumping of garbage and landfill).

These human threats operate at two principal levels. There is escalating use for subsistence that generally leads to impoverishment of reef biodiversity, possibly even complete loss over the long term. But far more dangerous are development activities that can lead to sudden and often irreversible loss of biodiversity, and even the whole reef system, through reclamation, industrial or domestic pollution, clear felling of forests upstream and consequent siltation, or removal or conversion of reefs with their complement of species and processes.

To be effective, reef management needs to focus both at the community level to relieve pressure on the reefs imposed by burgeoning populations and promote sustainability, and at the government decision-maker level to influence planning and avoid damaging developments.

Community level problems formerly were "resolved" by the creation of marine parks or reserves designed to conserve reef biodiversity and areas with good prospects for tourism. They were also designed to shut out local communities. Although this still happens in places, communities are being brought more and more into the con-



versation planning process. At the same time the design of reef parks and reserves increasingly takes into account the needs and aspirations of neighbouring communities. Zones are not only established to protect biodiversity, separate incompatible activities, safeguard research and tourist sites, but also to protect fish stocks sought by local fishing communities. Park related jobs are reserved for these communities, and they benefit by sharing of revenues generated by the park, which are ploughed back into the community projects (school rooms, clinics, workshops).

At the government level, reef management suffers from inadequate or divided institutional responsibilities and capacity. These include those to control destructive land use, guide physical planning, increase public awareness, adapt customs alongside new technology, and integrate the needs of coastal communities into development and conservation projects.

This lack of adequate institutional capacity is one of the major constraints in achieving reef conservation in the western Indian Ocean, for example. Here responsibilities for fishery man-

ALL PICTURES: ROD SALIM AND PLANET EARTH PICTURES EXCEPT TOP RIGHT: NORBERT WU/STILL PICTURES



agement and for reef parks and reserves are usually clear, but those for the reefs outside protected areas are undefined.

Some countries have marine protected areas in place. However, many of these lack adequate management, have not been designed following adequate studies or through the application of ecological principles, or they give inadequate consideration to the needs and interests of traditional users of the included areas. Many additional marine protected areas have not advanced beyond proposals, while others have been gazetted then forgotten. We continually learn more about

the linkages between the land and marine environments resulting from river flow, surface run-off, current transport, and larval movements and species migrations. We are also learning to look beyond the traditional approach of locking up coral reefs in marine parks and reserves, and expecting them to survive in isolation. While parks and reserves remain useful tools for reef conservation, they are simply not enough on their own. They need to be integrated into a broader environmental management regime, such as through coastal zone management.

Coral reef conservation involves a

number of related activities. Ideally, a system of parks and reserves would be established to include areas of special interest, and to enable strict protection, controlled access, regulation of activities, and intensive management. These marine protected areas should themselves be supported by a management framework of wider focus, such as through coastal zone management, where controls are exerted over linked areas (both inland and offshore) through a co-ordinated programme of policies, legislation, plans and actions. That is the conceptual framework for conservation of coral reefs.

Related to this is the requirement for research to yield information on reef species and distribution, uses, and threats, and the processes sustaining them. Also, and crucial to the success of the reef conservation effort, there is the fundamental need for community involvement in the form of participation in the planning and programme development process, and through extension and awareness activities, and income generating opportunities.

Finally, we need to dispel two basic beliefs that inhibit conservation action in the seas of many developing countries. First there is the conviction that unless an area is engineered it is lying idle; the second is the view that unless an area is being used it is useless. The first applies to wetlands, and especially mangroves on the coast. The second also applies to wetlands, but more so to coral reefs.

The predicament we face with managing the sea is that its problems and processes remain hidden and mysterious to most people, often leading to false perceptions. We need to advocate the role of coral reefs and mangroves as natural fish farms, wave breakers, shore defenders, leisure areas, and storehouses of many other goods and services – whether we see them or not. Not just those who dive over reefs or daily glean their livelihood there, but all of us need to recognize the hive of activity hidden by the sea's reflective surface. ■

Rodney V. Salm is Co-ordinator of the Marine and Coastal Conservation Programme for IUCN in East Africa.



Where women take control

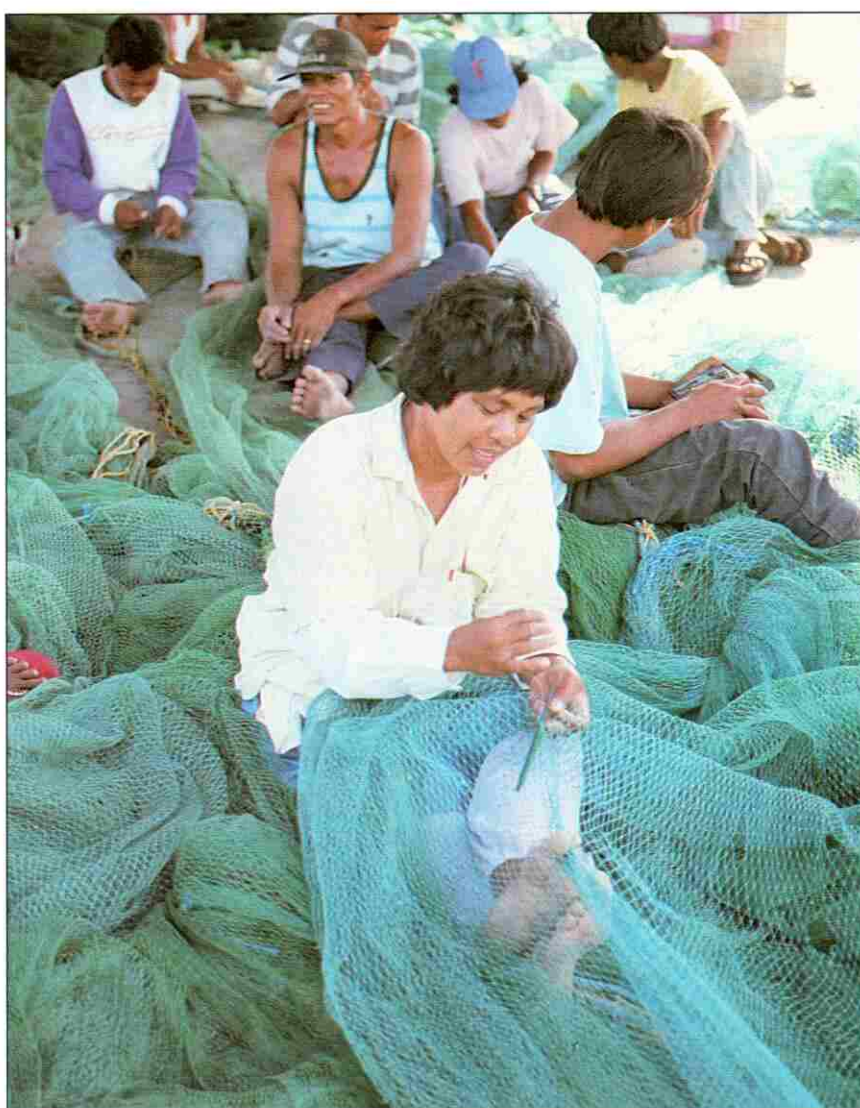
Examples of women taking charge of their environmental resources and of their own health and family planning needs are slowly increasing. *Don Hinrichsen* reports here from an island community in the Philippines where this is happening.

Located on the island of Panay, just south of Luzon and Mindoro, the Province of Capiz is one of the poorest in a country full of poverty. Of its 680,000 residents, over 60 per cent make their living from the sea, either directly or indirectly. Half live below the poverty line (set at 2,500 pesos a month: less than \$100).

Like much of the rest of the Philippines, the island's fish stocks have been drastically reduced over the past 30 years from chronic over-fishing and the use of dynamite, poisons and fine-mesh nets. Many fishermen have had to become fish farmers. Much of Capiz's coastal zone has been converted into fish and shellfish ponds; 20,000 hectares in all. The province's natural 'fish farms' – mangrove swamps – have been devastated by coastal development: converted into fish ponds and rice paddies, harvested for timber, or filled in for urban expansion. Only around 1,000 hectares remain.

Many of the Province's poorest people live in small fishing villages, forced to eke out a meagre living from an increasingly unproductive sea. To make matters worse, many of these villages do not have secondary educational facilities for their children. They must send them to boarding schools in the larger towns; a burden few can afford. Without further educational opportunities, often the only thing handed down from generation to generation is a legacy of poverty.

The majority of small, isolated coastal villages do not have a doctor or regular access to maternal and child health care and family planning services. As a result, families remain large, averaging 4-6 children per couple (the desired family size is three children). Most of the women, unable to earn extra income, end up staying at



BOTH PICTURES DON HINRICHSEN

home. Some are able to raise pigs and chickens or grow vegetables to supplement diets that consist mainly of fish and rice. Few are in a position to earn any money.

In order to tackle the pervasive poverty that grips these coastal fishing villages, and reduce family size (one of the reasons for deepening poverty), the Governor of Capiz launched a multi-

faceted programme to raise income levels and improve the status of disadvantaged women. Technical assistance was provided by the Philippine Agriculture Department, in co-operation with the Manila office of the UN Food and Agriculture Organization (FAO). Funding came from the United Nations Population Fund (UNFPA), as part of its country assistance pro-

gramme for the Philippines.

After just three years, there are now 30 women's groups in Capiz, involving 829 women. Most of these groups are now at the centre of village development initiatives, including improved health care, family planning services and better resource management. Collectively, their enterprises have generated savings of over 200,000 pesos (\$7,700).

"Our experience showed that coming into these poor fishing communities with strong family planning and health messages was inappropriate," explains Connie Fagtanan, the petite and dynamic leader of the project. "They needed basic development first, family planning later. The project has proved to be a good entry point for increasing the status of women and raising awareness of population issues and family planning in particular."

Libas, a fishing village near Roxas City, the capital of Capiz Province, was one of the first villages to form a women's group in 1990. It now has 34 members, all trained in community organization, micro-enterprise development, financing and family welfare (including nutrition, health and family planning).

Group members took out initial loans for around 2,000 pesos each (\$75), with a one year payback period. Most of the money was used to start fish vending businesses, selling in the local market what their husbands bring in from the sea. Some have also started to raise pigs, ducks and chickens and grow vegetables in backyard gardens. No one has defaulted on the loans. For the first time in their lives, these women are able to save a little money (around 20-30 pesos a month).

Recognizing the value of education, a number of women are using their hard-won savings to keep their children in school as long as possible, a goal that would have been impossible before the project.

Furthermore, family planning has become the norm, not the exception. "Nearly all the women in the Libas group are now using some form of contraception," claims Connie. "Before we formed the group, virtually none of them were practising family planning."

Rose Antion, President of the Libas Women's Group, is confident that the future will be much better than the past. "We are closer as a group and have much more influence than we ever did as individuals," she points out. "We are now in a position to help our community and our families much more than before."

Their next project, assuming the

money can be found, will be the construction of a fish processing plant in Libas. Not only would it create more jobs in a depressed area, but it would help the economy of the entire region. Some women also want to start a mangrove rehabilitation project.

"We now have something to look forward to," affirms Rose, "and so do our children." ■

'Industrious Mothers'



Bantique village sits on an island in the Panay River, just before it empties its silt-choked waters into Pilar Bay. Like much of the rest of Capiz Province, Bantique makes its living from the sea. With fish stocks in decline, many fishermen have had to resort to raising prawns, milkfish, sea bass, grouper and tilapia in large ponds.

With the formation of a women's group in 1992, known as 'The Industrious Mothers of Bantique', the village is beginning to rise out of its poverty. The group now has 22 members, with more joining monthly.

Before the project, these women stayed at home or helped their husbands raise prawns or pond fish. They had no independent sources of income. Taking out loans averaging 3,000 pesos each, the women were able to begin culturing fish, prawns and oysters, fattening crabs for sale and selling shrimp, fish and vegetables in Panay, 17 km away.

Today, their lives have improved and

so too has the quality of life in Bantique. The profits they made from their initial investments have been ploughed into culturing brown mussels, taking pressure off wild stocks. The women have also introduced supplemental feeding at the local primary school and actively participated in the country's 'National Immunization Day', pitching in to help vaccinate every village child against polio and tetanus. In addition, they are responsible for persuading the government to bring electricity to the village next year.

Rosie Rios Saneo, secretary of the women's group, says their next project is to culture seaweed; an activity that will provide yet another source of income to the village.

The women are justifiably proud of their accomplishments. "We are now able to stand on our own," says Rosie, "and help with the continued development of our village and the management of our resources." ■

Saving the Bay

In the first of our reports on how people are fighting back against coastal destruction, *Timothy Wheeler* reports on how local inhabitants are leading the effort to save America's largest and richest estuary.



On a gloriously sunny Saturday in Baltimore, Maryland, when they would usually be enjoying a holiday, more than 100 people spent their morning raking and picking up five tonnes of trash bottles, cans, paper and plastic, 'crack' vials, hypodermic needles – and more than 200 old tyres littering a cove not far from the city's gleaming skyscrapers.

The cleanup, organized by a local environmental group, barely made a dent in the unsightly clutter among the urban shoreline. But it is just one small example among many of how people who live around the Chesapeake Bay are beginning to take responsibility for degrading – and possibly restoring –

this treasured national resource.

The Chesapeake is America's largest estuary and one of the richest bodies of water in the world. It supports some 2,700 plant and animal species and is home to 200 species of fish and shellfish. When English settlers led by Captain John Smith first explored the bay nearly 400 years ago, they marvelled at its natural abundance. The rivers teemed so with herring, shad, striped bass and sturgeon that the early colonists tried catching them with frying pans.

But those first settlers were followed by thousands upon thousands, until today some 13 million people crowd around the bay, an increase of 50 per cent in just the last 30 years. As the human population has grown, the bay's health has declined. The sturgeon have all but vanished, and shad are so depleted they are protected by a fishing moratorium. Oysters, once the bay's leading commercial fishery, have been decimated by overharvesting and disease caused by pollution.

Exploitation of the land also has damaged the ecosystem. More than half the bay's wetlands, crucial habitats for fish and wildlife, have been filled and drained for farming and development. Forty per cent of the region's forests – vital buffers against polluting land uses – have been cleared as well. The waters around major areas like Baltimore, Washington, DC, and Norfolk, Virginia, are toxic 'hot spots', contaminated by decades of industrial and residential pollution.

The bay's chief problem, however, is an overload of nutrients from human activities. Nitrogen and phosphorus pour into Chesapeake from fertilizers used on farms and lawns, from treated municipal sewage, and even from rain, which washes air pollution from cars and industries into the bay. Nutrients are essential to life, of course, but too many upset the bay's delicate ecological balance, killing off underwater grasses that feed and shelter fish and consuming the oxygen in the water that fish and shellfish need to breathe. During the late spring and summer, vast stretches of 'dead' water where no fish can live smother the bottom.

But there is reason for hope. Ten



years ago, aroused by a \$25 million study describing the Chesapeake's problems, federal, state and local officials pledged to work together to "save the bay". That initial compact has been fleshed out in ensuing years to include specific goals and timetables for restoring the estuary, the most ambitious of which was to reduce nutrient pollution of the bay 40 per cent by the year 2000.

A decade later, there are some signs that the bay's decline has been halted, and maybe even recovery has begun: striped bass have rebounded after severe fishing limits saved them from oblivion; pollution from industry and sewage has been reduced significantly, and the bay's underwater grasses, where crabs and fish spawn and grow, have increased 70 per cent after nearly disappearing in the mid-1980s. Bald eagles, ospreys and other raptors in the bay region are recovering because of a nationwide ban on the pesticide DDT,

Clean-up of Middle Branch River, Baltimore.



which was blamed for reproductive failures.

The Chesapeake restoration effort has been herculean, costing perhaps \$400 million a year, and the bay's future remains clouded. The states are not even halfway to their nutrient reduction goal, and although blue crabs remain abundant, oysters are at an all-time low. On land, songbird populations have declined because of continuing forest fragmentation.

Nevertheless, the Chesapeake Bay programme is seen by many as an international model for trying to restore enclosed coastal seas threatened by human impacts. Carol Browner, Environment Protection Agency administrator, says that the bay cleanup has demonstrated the "power of co-operation" and the necessity of addressing pollution problems throughout a watershed, rather than in piecemeal fashion.

Part of the Chesapeake campaign's success stems from the bay's proximity

to the nation's capital. Lawmakers who sail its waters and spend holidays on its shores have generously funded the programme through economic hard times and turnovers at the White House.

Even so, citizens, not politicians or bureaucrats, have driven the bay cleanup. Thousands of volunteers take part in stream and shoreline cleanups like the recent one in Baltimore. Many others have taken the campaign throughout the bay's 64,000 square mile watershed, painting warnings on curbside storm drains not to dump trash or oil because they will wash into the bay.

"The response of governments to the bay programme has been 100 per cent due to the fact that the people who live in this area have said they want the bay cleaned up," said William C. Baker, president of the Chesapeake Bay Foundation, an environmental group whose membership swelled from 15,000 to 85,000 in the past decade.

Other groups have had similar growth.

The people often are out in front of their leaders. In the 1980s, for instance, citizen pressure to ban polluting phosphate detergents overcame intense lobbying pressure from the nation's soap industry, which warned darkly – and falsely – that disease outbreaks would result. Recreational fishermen alarmed by the disappearance of striped bass demonstrated for a fishing moratorium, which led to the species' recovery. Public support also prompted passage of state laws to curb waterfront development and to protect remaining forests and wetlands.

All concerned seem to be trying to change at least some of their polluting ways. Industry, recognizing cost savings in waste reduction, at times cleans up more than the government requires; many farmers are also saving money by using less fertilizer and pesticides, and local officials and developers are seeking ways to build new houses and shopping malls while causing less environmental harm.

The challenges remain immense. The bay still has a long way to go to be considered as healthy as it was 40 years ago, yet the region's population is projected to reach 16 million in the next 25 years. That growth will bring more industrial and commercial development, highways and housing, cause more air and water pollution and further reduce wildlife habitat.

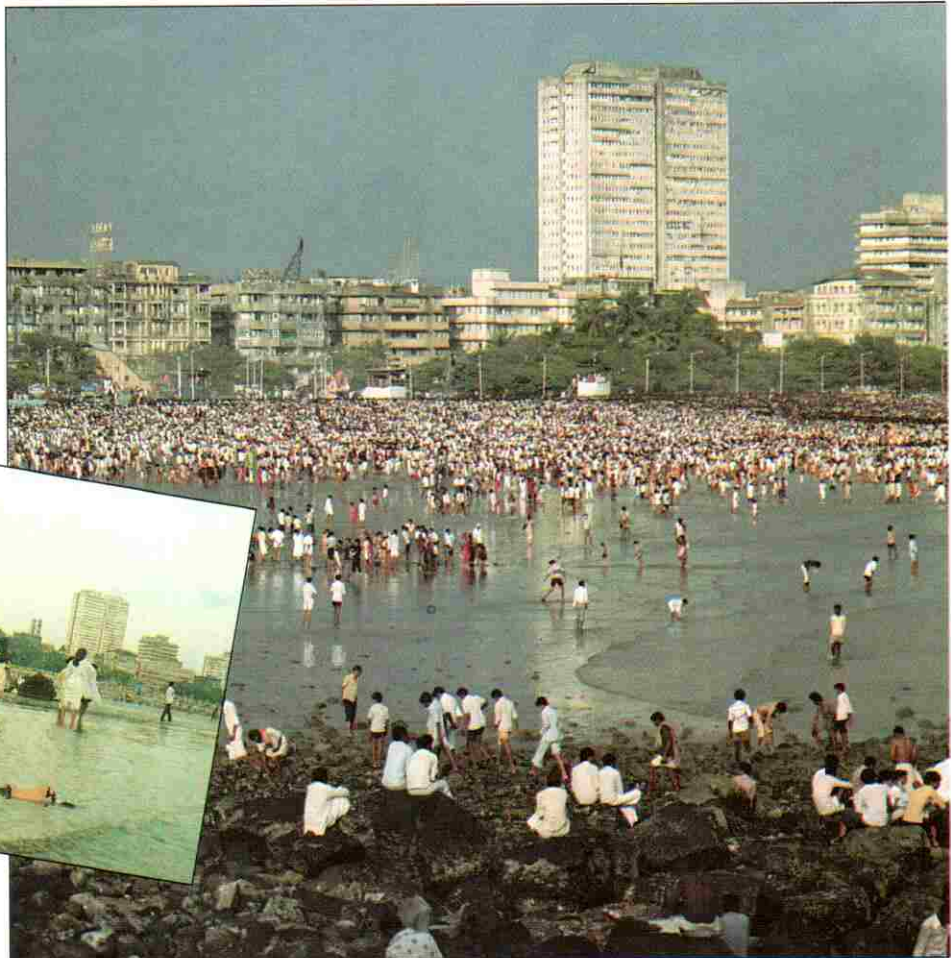
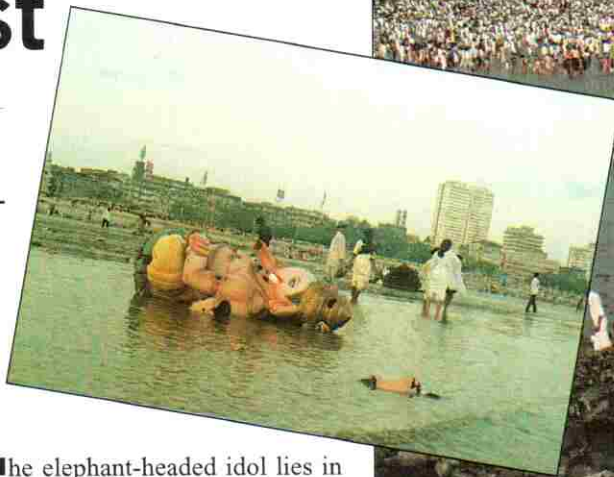
"The whole bay problem is centred around people, and the success or failure of it is dependent on how well we mitigate the impacts of people," said Mr Baker. People must change the way they live, work and play around the bay, he added, spending more for cleaner automobiles, but also by driving less and by using up less land for development.

"We definitely think the bay can and must get a lot better," Mr. Baker said. "And if society doesn't succeed in restoring the bay – perhaps not to the way it was in John Smith's day, then perhaps to what it was in the 1950s – what hope do you have for the rest of the planet?" ■

Timothy B. Wheeler is the environmental reporter for the Baltimore Sun.

Resurrecting Bombay's coast

by Bishakha Datta



The elephant-headed idol lies in the water and looks up at the sky. The sky is shot with sacred pink and orange, but the water is an unholy mess of broken bottles, rotting garbage and the everyday junk of living. Ganesha, the much-loved Hindu god of bounty, has little choice in his immersion. He has been celebrated for 11 days but now his idol must go out with the garbage.

Garbage dumping is one of the biggest problems facing Bombay's Arabian Sea coast. "The dumping has increased terribly in Malad Creek," says retired English professor T V Jose. Just last month, Jose approached the Bombay Environmental Action Group to stop his birdwatchers' paradise from being turned into a huge garbage dump.

The creek — home to rare birds such as the Ashy Minivet — also houses one of Bombay's last mangrove forests. Slum-dwellers, who don't realize the ecological value of mangroves, routinely chop them for firewood. Builders, who care little for ecology, illegally construct factories on reclaimed bits of the creek. And the garbage keeps on growing. "At this rate, the whole creek will be filled within two or three years," says Jose. "But that place can be protected. The birds must survive."

Like Jose, many individuals and small groups are struggling to save Bombay's 35 km-long west coast. This narrow island strip of 12 million faces,

belching factories, rushing trains and traffic jams is sandwiched between two seas. Since the docks have overrun its east coast, the Arabian Sea coast on the west is the city's only outlet to sanity.

Little wonder then that Bombay's oldest environmental campaign centres on the coast. The campaign, launched in 1971 by the hurriedly-formed Save Bandra Beach Group, is still underway: it is determined to block the construction of a five-star hotel on prime coastal territory.

"We started up when there was no environmental movement or action group," explains Sadanand Varde, who is the campaign's mainstay. Varde, himself a politician, lobbied other politicians to stop the development. After a string of unkept promises, his group finally took the issue right up to the Supreme Court.

While the Supreme Court has not blocked the proposed hotel, it has ruled that any construction on the site could be challenged under pending coastal legislation. Construction has yet to begin on the site; this year, the Ministry of Environment and Forests filed an affidavit emphasizing that construction on the Bandra site would violate a coastal protection law.

Stay orders, writ petitions and other legal devices are major weapons in the

arsenal of groups battling to save Bombay's coast. In 1991, three citizens' groups got a court order preventing city authorities from reclaiming coastal land that would have killed another mangrove patch. "They were just dumping building debris and garbage," remembers group member Heta Pandit. "They wanted to build a promenade. All these so-called beautification plans are destroying the entire character of Bombay's coastline."

If beautification is ruining the coastline, so is pollution. Offshore excavations and uncapped oil wells result in oil slicks and spills; fishermen insist that chemical and textile industries discharge untreated effluents into the water. "House drainage and sewerage also comes into the sea untreated," says Bhai Bandarkar, who heads an association of Bombay's fishermen. "Earlier at least the quantity of sewerage was less. Now you can't put your legs into the sea." In 1990 some 365 million tonnes of untreated sewage and municipal wastes were discharged into coastal waters.

Bandarkar has reason to be concerned since coastal pollution directly affects the livelihoods of Bombay's 40,000 fishermen — and the 60,000 women and children who dry, sell and otherwise live off fish. "You can't get

'Sea Watchers'

by Don Hinrichsen



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the Indian salmon in Bombay's creeks any more," says Bandarkar. "All fish quantities have dropped." One estimate has it that fish catches have halved in recent years. But despite numerous representations, "nothing is done by the Government," rues Bandarkar.

Neither has the state government drawn up a coastal management plan, even though every coastal state is required to do so. "Nobody has done it yet," says Debi Goenka of the Bombay Environmental Action Group. This tiny group is working to ensure that Maharashtra – the state in which Bombay lies – draws up a plan in which coastal stretches are correctly classified.

Despite the stench from untreated sewage washing in with the tides, the coastal stretch with the Gateway of India "should be classified as 'ecologically sensitive' since the Gateway is a heritage site," argues Goenka. Laws prohibit further development of coastal areas declared ecologically sensitive under each state's coastal management plan. "Until the state draws up this plan," stresses Goenka, "protecting the coast is a hit or miss approach at best." ■

Bishakha Datta, a freelance journalist and film maker, is People & the Planet's India correspondent.

Knee-deep in mud, Wilson Vailoces is all smiles. At 60 he is still as energetic as his grown-up sons. Wilson is examining the growth of a luxurious stand of red mangroves, trees he planted himself eight years ago along the tidal flats in front of his house, just north of Bais Bay on the east coast of Negros. Already they are over 10 metres high and still growing, stabilizing the shoreline, anchoring erosion sediment, and providing valuable habitat for hundreds of species of fish and shellfish.

Wilson's mangroves do not stop at his property line. Thanks to his pioneering efforts, they now march over 4 km up the coast, covering over 100 hectares. Wilson has planted around 10,000 individual trees himself, helping to reforest a coast that was virtually devoid of mangroves a decade ago. There are now over 100,000 mangrove trees in Bindoy municipality, with more being planted every month.

"We had cut down all the mangroves and reduced most of our reefs to rubble by dynamite fishing," explains Wilson. "We destroyed in one generation, what it took nature a hundred years to produce."

By the mid-1980s, with the entire economy of the region collapsing from over-fishing and the destruction of critical habitats such as mangroves and coral reefs, Wilson decided he had to rebuild the region's resources, if there was to be any future for his children and grand-children. He began his mangrove rehabilitation project with help from the Marine Laboratory at Silliman University. After his neighbours saw how important mangroves are as natural 'fish farms', they followed his lead.

But Wilson didn't stop with mangroves. He also built and sank over 1,000 artificial reefs, made from bamboo, rubber tires or concrete. Designed as large pyramids, they provide excellent cover and homes for a host of marine life.

At the same time, he began working with local farmers in an effort to convince them to use less harmful pesticides on their fruit crops (particularly mangos). And he persuaded the Department of Environment and Natural Resources to encourage subsistence farmers working steep slopes to plant trees, in order to reduce soil erosion into coastal waters.

"Great damage has been done to coastal fisheries from landslides and siltation due to deforestation in the hills," explains Wilson. "Coral reefs have been buried and mangroves inundated. But we have now turned this situation around."

Renewing resources is only part of the battle. Mangroves, coral reefs and fisheries must be managed properly and protected from poaching. Today, Wilson is the vice president of the local fisherman's association, as well as president of the Bindoy "Sea Watchers'" Organization. In order to insure that fisherman do not employ illegal techniques, such as the use of dynamite and poisons, to catch fish, Wilson has recruited a 50-strong force to patrol the waters north of Bais Bay. Offenders are apprehended and turned over to the proper police authorities for fines or prosecution.

"We carefully watch for any illegal activities in our waters, such as fishing with fine mesh nets, or using dynamite and poisons," says Wilson. "Over the past several years, our sea watchers have caught several hundred fishermen using illegal techniques. Most have been fined, but a few were sent to prison."

Like his mangrove project, which spread up the coast of Bindoy, so too his sea watchers' organization is growing. More and more villages on this side of Negros are forming their own sea-going patrols in an effort to safeguard remaining resources.

Wilson's work is not done. But the region is well on its way to recovery. Fisheries and the fecund coastal ecosystems they depend on are now being managed, not simply exploited. "Before, we were slowly killing ourselves," claims Wilson. "No longer. We are rebuilding our resources for the future." ■



Haitian fisherman making a basketwork net.

Haiti fishermen plan a marine park

by Evelyn Wilcox

The first time I saw the Les Arcadins region of Haiti was underwater. I knew then it would make a perfect marine park.

The Les Arcadins Bank, about half a mile between the mainland and the island of La Gonave, is only about five kilometres square, ranging in depth from 13 to 19 metres. It is marked by three small uninhabited islands surrounded by extensive sea grass meadows and coral reefs. The sea is a gorgeous aquamarine blue.

Once, the Haitians say, plentiful hawksbill sea turtles shared the feeding grounds with huge quantities of Queen conches and other mollusk and invertebrate species. Now, though there is still an amazing variety of fish, they are fewer in number, there is no sign of the sea turtle, and the conches are only harvested in small numbers.

Until recently, a lack of coastal development, low levels of industrial pollution, and difficult access to the sea protected Haiti's coral reefs from damage. However a growing shortage of fertile land is forcing farmers onto steeper slopes near the sea, eroding the soil and blanketing nearby reefs and seagrass beds with silt. Haiti's bur-

geoning population has felled 90 per cent of the tree cover and the once-rich waters are becoming rapidly depleted.

The idea of protecting the wonderful natural wealth of Les Arcadins had been the dream of many, including Jacques Cousteau. Finally, with USAID funding, a feasibility and research study was carried out with WWF and local support. This reinforced not only the value of a park, but made clear that this could only be done if the people in the nearby village of Luly were involved.

Luly, or "Kalili", has a population of about 2,500, living mostly in small adobe and tin-roofed houses. Here every day is harvest day carried out by professional fishermen whose traditions extend back for centuries. Their livelihoods depend on the continuing productivity of Les Arcadins' sea grass meadows and coral reefs, which supply breeding grounds for more than 200 species of fish, crustaceans, corals and sponges.

The people of Luly understand that overfishing endangers their livelihood, and local fisheries teams are firmly committed to community welfare. This sense of community and trust, on which their fishing depends, has helped to build support and cooperation in planning for a marine park which will protect both coral reefs and fish stocks.

The fishermen, with WWF, are now

researching whether fishing in deeper waters might relieve the pressure on reef fish populations and allow them to troll for large schooling fish such as yellowfin tuna, wahoos and deep-sea snappers.

To build up fish stocks, WWF has also proposed setting aside a fish reserve within the park that would be off-limits to fishermen and tourists.

Over a period of a year and a half in the early 1990s the fishing community has addressed a whole series of local concerns about the project. Local groups, including small fisheries teams and women's and young adults' groups, have begun to organize better. Self-financed projects have developed a soft drinks concession, candle-making, and vegetable growing.

In the summer of 1992 the children from Luly and two neighbouring communities held a summer camp. They visited the three small islands of Les Arcadins by boat and composed a song about protecting their environment. A children's environment club was formed, which WWF hopes may spread into a national movement among Haitian children. Four booklets published in Creole feature characters called Queen Conch, the Spiny Lobster, the Sea and the Environment.

During the final stage of park preparation the Luly fishermen and their families will help draft a management plan for the park and reserve. Other partners will be the marine park advisory committee convened by WWF some years ago, which alongside Luly fishermen included representatives from the Haiti Hotel Association, environmental groups and government fisheries and tourism departments.

In the midst of coups, embargoes and a nation coping with hunger, poverty and the most serious kinds of environmental degradation, the Haitians are struggling to keep the park idea alive. It is that important to them. ■

Evelyn Wilcox is marine co-ordinator of WWF's coastal and marine interests in the Caribbean. She provides oversight for the Les Arcadins Marine Park and Fisheries Project in Haiti. This article is extracted from The Law of the Mother, reviewed on page 36.

Coasts: the ethical dimension

Coastal problems require more than technical fixes. They are first and foremost a matter of governance, requiring fundamental changes in values and behaviour, write Stephen Olsen and Lynne Zeitlin Hale in this challenging endpiece.

Rapidly increasing numbers of people are profoundly altering the very qualities of coastal regions that make them the preferred home for the majority of the world's population. Already, nearly two-thirds of humanity lives along a coastline. And it is here that the greatest proportion of the projected increase in our population is expected to be concentrated when the planet's 'passenger list' becomes twice as long, around the middle of the next century.

Along with masses of people, coastal areas contain a high proportion of the world's most productive and diverse ecosystems, produce most of the world's fish catch and support major portions of the world's agriculture, industry and tourism.

Although the pace of resource loss varies from region to region (and there are a few examples of recovery and restoration), the major trends are depressingly clear: they are all headed in the wrong direction.

Along most coastlines water quality is declining. Stocks of commercially important fish and shellfish are collapsing. Prime agricultural land is being lost to urbanization and erosion. Critically important habitats such as coral reefs, mangrove wetlands and seagrass beds are being destroyed or



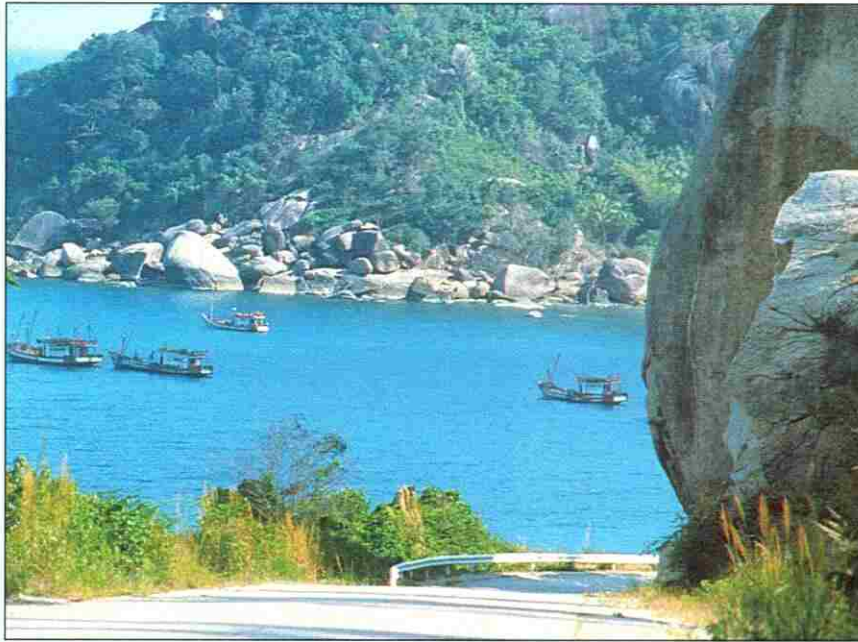
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Top: Manila, Philippines, showing flooding of coastal land. **Above:** Coastal erosion. Morro Branco, North Brazil.

Protecting Phuket's coral treasures



In the early 1980s Thailand's economy was growing fast and the Kingdom's rich natural resources were being heavily exploited with little management care. In coastal areas, the need for effective integrated resource management was especially great.

Tourism was booming and pristine coastal areas were being rapidly developed as resorts, with little regard for the environment which the tourists were coming to enjoy. Coastal fisheries were shrinking, mangrove forests were being lost to shrimp ponds and other coastal developments, and water quality was declining. Fewer than 36 per cent of the 300 major coral reef groups, covering some 12,000 km², were in good or very good condition.

It was in this climate that the Coastal Resources Centre and the Thailand Office of the National Environment Board (ONEB) began work on a national coastal management programme (CMP), beginning in 1986.

In assessing why previous resource management programmes had had so little impact, the CMP concluded that the major barriers were a lack of (1) political will, largely resulting from the absence of a broad and strong

constituency for effective coastal management at both the national and local level, and (2) tangible models of effective resource management. Clearly, all coastal management problems could not be addressed at once. We instead looked for a few strategic opportunities where we could build support from improved coastal resource management, overcome barriers to implementation, and gain credibility through tangible, short term successes. Improving the management of coral reefs presented such an opportunity.

To gain experience in removing impediments to effective resource management, CRC and ONEB began a pilot project in 1987 on Phuket Island, that worked to mobilize both private and public support to implement meaningful coastal management initiatives. Phuket's west coast consists of a string of beautiful pocket beaches with fringing coral reefs and was the centre of a booming and totally uncontrolled coastal tourism industry. When the project began, awareness of the existence, beauty, significance or recent degradation of Thailand's coral reefs was limited to

direct resource users and a few scientists.

There were two distinct goals for the Phuket Coral Protection Strategy. The first was to protect and provide for sustainable use of the reefs. The second goal was to use the relatively simple and non-controversial issues associated with coral reef protection to build local and later national support for addressing other coastal management issues in Phuket, and coral reef management nationally.

The strategy basically worked. Using coral reefs as both a symbol and a relatively easy first step, first a coral protection strategy, and later a more integrated action plan to address coastal management issues in Phuket was formulated and adopted. Implementation actions – especially for the coral reef initiatives were significant. They included a substantial number of voluntary actions by reef-related businesses to reduce physical damage to reefs, policy initiatives by the Fisheries Department to create and manage local sanctuaries, and adoption of water quality standards by ONEB. Where in 1986, it was simply not possible to realistically talk about implementing land use and pollution control plans in Phuket, by 1990 locally-based private and public sector representatives who had worked on the coral strategy were working hard to find solutions to these more thorny problems.

On a national level the strategy also paid off. The CMP began making the case for a national coral reef management strategy. Again, our chief concern was to make sure that such a strategy would be supported and effectively implemented by all Thai government agencies responsible for coral management, national coral experts, Provincial officials, and representatives of key user groups.

Local level input was widely sought and the national strategy adopted by the Thai Cabinet in 1992. With a core constituency in place and a model integrated national/local management strategy being implemented, Thailand is poised to go through the policy cycle again to effectively address a more complex series of issues. ■

degraded. Conflicts among human user groups are becoming more intense and, if left unresolved, may very well lead to deepening poverty and increased violence. The changes to local environments that humanity is making, both along coasts and elsewhere, is now beginning to affect the entire planet.

Human impacts on coastal zones are contributing to the process of global change, the effects of which we can only dimly perceive. It is quite pos-

sible, however, that along coastlines global change may very well manifest itself in terms of major shifts in rainfall patterns, an increase in the number of violent and destructive storms and a rise in sea level.

Much of this degradation and conflict is avoidable and unnecessary. The problem is that in too many places the process of coastal development and change occurs in the context of anarchy, where governments exert little, if

any, meaningful control. In low income tropical countries, where the pace of change is most pronounced, the desire for short-term profit by elites does as much damage to the environment as the desperate actions of the poor who must struggle to feed their families.

In these situations the first priority for any national coastal management programme is to bring some order and control to the process of change. It also calls for a consideration of equity

issues in the development process and a long-term view of what is sustainable and what is not.

The importance of current trends in relation to the condition and use of coastal regions and their implications for humanity are being recognized by a growing number of institutions and individuals. The 1992 Earth Summit's Agenda 21 calls for major investments in the preparation of integrated coastal zone management plans. Current experience, however, shows that the preparation and adoption of technically sound plans and programmes will, by themselves, accomplish very little. The most pressing and difficult challenge is to overcome the barriers to implementation; achieving meaningful action on the ground.

It should be clear that coastal management problems are not merely technical problems requiring technical fixes. We cannot simply amass data, analyse it, then select and apply the 'right' technical solution. Such technocratic approaches to the complex web of social, economic, cultural and environmental factors that give coastal areas their character and complexity have left little more than a mountain of reports. We must recognize that effective coastal management is first and foremost a problem of governance. Success will ultimately require modifying entrenched individual and institutional values and behaviour. This makes the challenge one with major ethical dimensions.

Can progress be made? Promising initiatives in many areas of the world, both developed and developing, are showing the way ahead. Successful coastal management programmes seem to share a number of common characteristics:

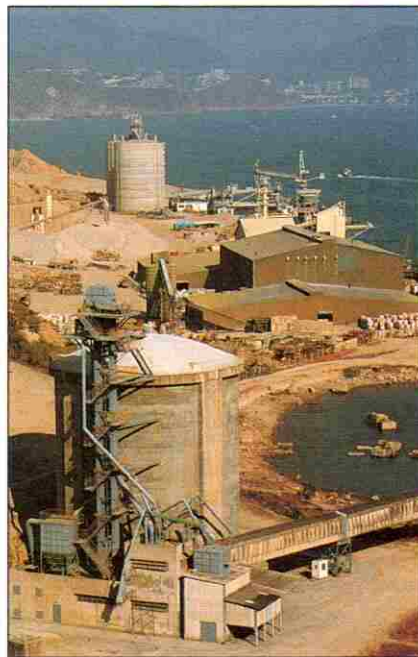
- They are focused on a limited set of issues considered important by the communities affected;
- They are holistic in their analysis of selected problems, but not necessarily comprehensive;
- They involve local communities in the analysis of issues and in the formulation and implementation of management programmes;
- They integrate the best available knowledge about affected ecosystems,

but call for responsible action in situations where there is uncertainty over the precise cause and effect relationships driving management problems;

- They provide for an equitable, open and efficient decision-making process; and

- They learn from their experiences.

If societies are to define and achieve sustainable development, we will have to learn the what and the how through a series of approximations. Resource management initiatives like those now being prepared for the world's coasts need to be clear and pragmatic about



Cement factory, Hong Kong.

what they hope to achieve and set clear standards against which progress (or the lack of it) can be evaluated. It may very well take several generations of management plans to effectively address the underlying causes of coastal degradation. Nevertheless, programmes need to complete the loop between planning and implementation quickly – even if only on a limited set of issues – so that confidence and experience can be built and applied to more complex problems.

One strategy that is proving effective in launching coastal management programmes in countries with little or no history of effective resource manage-

ment is to proceed simultaneously at both the local and national levels. The 'two-track approach' uses local level demonstration projects – linked to and supported by national policy makers – to discover, test and apply innovative governance and technical solutions to the complex matrix of coastal management issues.

This strategy recognizes the difficulty of getting people and institutions to change their behaviour and work together to solve problems. It is often easier and more effective to get government agencies to co-operate and work with resource users and other interest groups on a limited set of problems in only one or two small areas. Requiring states and communities to agree to a top-down, comprehensive management plan to be applied nationally, is often counter-productive. When local projects succeed, such success can be built upon – both in its application to other areas and in providing real insight into what initiatives or reforms are needed at the national level.

Equally critical to launching coastal management programmes that will be implemented and sustained is to build a broad and strong constituency that supports, even demands, more effective management. This requires not only investments in public education programmes that create awareness of coastal problems, but also support for politically astute coastal zone managers who realize that how they carry out their activities is equally important as what they do.

Finally, we must invest in building indigenous institutional capacities to manage coastal areas. This might very well mean training a cadre of coastal zone managers capable of working with the many technical specialists, resource users, business interests, bureaucrats and politicians who must be part of any coastal management process. Such a strategy is essential if coastal degradation is to be reversed and resources managed sustainably. ■

Stephen Olsen is Director of the Coastal Resources Center of the University of Rhode Island; Lynne Hale is Associate Director of the Coastal Resources Center.

Summit surprises



In late October, no fewer than 43 national scientific academies convened for four days in Delhi, India. This was the first time that so many academies had come together to discuss a topic of common interest. And what did they choose to discuss? No less controversial an issue than population, in conjunction with environment and development.

Hence it was a remarkable occasion. Scientists tend to be an argumentative lot, and if you get just ten of them in one room, they'll hardly agree on the time of day. Assemble 120 of them, and from a dozen disciplines and 50 countries, and the prospect would seem promising for endless debate and ultimate discord. In the event, the New Delhi gathering came up with a Conference Statement that earned the signatures of almost all participants, supporting the notion that population is a problem of a super-pressing sort.

This in itself was a gesture of salient significance. The population 'debate' has dragged on for decades. Scientists of various stripes have asserted there was a problem, no there wasn't, there might be one day, they'd have to research it lengthily more before they could decide. Now we can accept that scientific leaders from North and South, East and West, have determined the essential issue is established: population is not good news at all, and should be tackled before it becomes worse news – or even dreadful news.

The inspiration for the conference came from the thought that the scientific community should support the UN Conference on Population and Development, to be held in Cairo next September. Were the experts to clear the air by removing scientific dissent so far as possible, their initiative would smooth the way for the policy makers en route to Cairo. So four academies – the Royal Society, the US National Academy of Sciences, the Royal Swedish Academy of Sciences and the Indian National Science Academy – took the lead, together with 11 co-sponsoring academies, in organizing what came to be known as the Population Summit.

The summiteers proclaimed in their Statement that "Ultimate success in

dealing with global social, economic, and environmental problems cannot be achieved without stable world population. The goal should be to reach zero population growth within the lifetime of our children." This goal will require prodigious planning efforts. If all couples were to decide forthwith that they would produce no more than two children, the world's population would still keep on growing through demographic momentum for another several decades. The resource in shortest supply is probably not money but time.

The 3,000-word Statement contains many more such uncompromising assertions. This is all the more gratifying in that a statement with 50 national signatories is perforce a lowest-common-denominator affair. Nonetheless it fell far short of a statement published last year by the Royal Society and the US National Academy of Sciences: "If current predictions of population growth prove accurate and patterns of human activity on the planet remain unchanged, science and technology may not be able to prevent irreversible degradation of the natural environment and continued poverty for much of the world. ... Some of the environmental changes may produce irreversible damage to the Earth's capacity to sustain life. ... The future of our planet is in the balance."

The Delhi statement is backed by 25 professional papers on subjects as diverse as population history, energy, public health, agriculture, water, biodiversity, and contraceptive technology (publication due next April). These papers reveal a number of surprising insights:

- Out of 500,000 maternal deaths worldwide each year, perhaps one third are due to 'coathanger abortions' performed in developing countries. If, as Dr Mahmoud Fathalla of the Rockefeller Foundation points out, there was a freedom movement in which 500 people died in a single day as a one-off event, the world would be outraged. But when 500 women die every day in pursuit of their reproductive freedom, the world hardly flickers an eyelid.

- Because of the role played by the human female in the survival of the

species, she has been made the biologically stronger sex. Not only do females generally live longer than males, but more males are born in order to offset their greater mortality. So females should enjoy a higher survival rate right from the start. In those many countries where they are socially disadvantaged, however, females tend to get a raw deal. Girl children suffer poorer nutrition and overall health care; females fetuses are increasingly aborted in China, India and a growing list of other countries; and female infanticide is still a pervasive practice. Whereas in developed countries there are usually 95-97 males to every 100 females, in countries of developing Asia there are 105 males per 100 females. According to Dr Fathalla, some 60-100 million females have "gone missing" in the recent past.

- Humanity is poised to shift from being a highly reproductive species throughout its quarter of a million years of existence, to becoming a highly contraceptive species for (presumably) ever more. It must achieve this watershed transition within just a few generations. Ever since its emergence as a species, *Homo sapiens* has experienced profound pressure to reproduce with all energy. As recently as 12,000 years ago there were still only six million of us, with a life expectancy of 20 years and a population doubling time of 8,000 years. Even a small drop in the birth rate could threaten extinction. Hence there was a permanent premium on maintaining the highest possible birth rate. Hence too the pro-fertility attitudes enshrined to this day in many cultures and traditions.

- Despite the need for safer, cheaper and more convenient contraceptives, annual worldwide funding to produce new types is only \$57 million, worth a mere 3 per cent of contraceptive sales and well below the pharmaceutical industry's R and D norm. Public sector contributions represent 3-4 per cent of the \$800 million of annual international support for family planning.

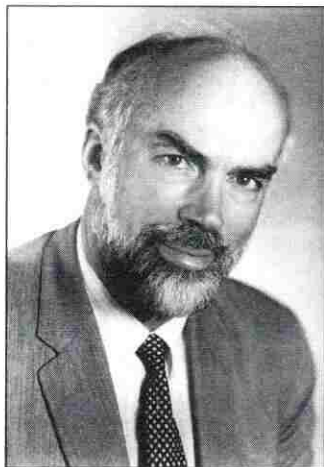
Two of these four surprise items focus on women's interests. At Delhi, women made up less than one-tenth of participants.

Norman Myers

Associates' News

IUCN's new Director

A New Zealander with wide international experience, Mr David McDowell, will be



the next Director-General of IUCN, on the retirement of Dr Martin Holdgate in April.

A former Director-General of the Department of Conservation and Head of the overseas development aid agency in New Zealand, Mr McDowell has also had extensive exposure to global issues as the Permanent Representative of his country at the United Nations and as a member of the Commonwealth Secretariat.

Mr McDowell's diplomatic career has given him the opportunity to work with countries in Asia and with small developing countries in the Pacific. He is currently New Zealand's Ambassador to Japan.

Mr McDowell enjoys a reputation as an effective leader, a competent manager, a distinguished diplomat and 'a people person'.

Unfair competition

Competition from governments, often unwitting, may be the single most serious constraint on the expansion of private sector family planning services, suggests a new paper from the

Options Project of the Futures Group.

The paper defines the private sector as including both for-profit and not-for-profit outlets but finds that it is in the former area that most problems and opportunities exist. It looks at what can be done to increase private sector activity, since it is unlikely that governments alone can meet the increasing demands for contraception. It finds that in many countries subsidized government services are being used by people in middle and high income groups who could afford to use the private sector.

Most governments are unaware that their policies are hindering expansion of the private sector. Lack of information and of proper analyses of market forces obscure the impact of inhibiting regulations, duties, complicated licensing procedures and value-added tax on the private sector.

While economic conditions have a large impact on the performance of the private sector, there are measures that governments and donors could take to stimulate more private sector services. Mexico's aggressive social security family planning programme, for example, is cited as a model of what could be achieved through greater use of insurance schemes.

■ *Options for Population Policy is a joint project of the Futures Group, Carolina Population Center, Population Reference Bureau, The Development Group and the Urban Institute.*

Helping women save the Amazon

Women's knowledge, skills and labour may be vital to the success of a global climate change programme in the Brazilian Amazon.

The programme, an initiative of the United States Agency for International Development (USAID), aims to introduce alternative forest use and management practices in order to slow and

eventually stop deforestation and thereby decrease climate change.

Within this framework, the Futures Group's GENESYS project is working with local non-governmental organizations and other participants in the programme to emphasize the complementarity of women's and men's roles in the design, implementation and evaluation of sustainable activities in extractive reserves, park buffer zones and agroforestry projects.

Evidence indicates that women play vital productive roles in these areas as sources of traditional knowledge about the habitat, collectors of forest products, processors of products and sellers. GENESYS – an acronym for Gender in Economic and Social Systems – is helping participants in the programme to incorporate gender dimensions in their work. Three workshops have been held so far, co-hosted by local NGOs in different parts of the Brazilian Amazon. The focus has been on formal and informal social science research methods and gender analysis.

GENESYS is also carrying out a research study to identify the best community-based marketing strategies for non-timber forest products. The result is expected to be a set of guidelines for use by Brazilian NGOs and forest communities which will encourage the judicious use of environmental resources and leave the forest intact.

■ *Contact: GENESYS, the Futures Group, 1050 17th Street NW, Washington, DC 20036.*

Norplant guide

The Population Council have issued a booklet, *Introducing Norplant implants in developing countries*, outlining the benefits and side-effects of this new method of contraception. The report points out that the method was first researched in 1966,

that first clinical studies began in Chile in 1974 and that the first large six-country study began in 1975. Clinical trials and studies involved over 55,000 women volunteers in over 40 countries.

The booklet stresses that counselling and correct information about the method should be provided to every woman who considers using Norplant. The method should only be provided by trained healthcare workers, within the context of a choice of methods, and with the knowledge that they can be removed at any time.

IPPF's International Medical Advisory Panel statement on Norplant, last amended in 1992, points out that the implant has a lower failure rate than the combined Pill or most IUDs. About 60 per cent of Norplant users report irregular bleeding patterns during the first year of use and this is the most common side-effect. It concludes that a carefully designed public information programme is important.

■ *Contact: The Population Council, One Dag Hammarskjöld Plaza, New York, NY 10017.*

Powerful logos

The power of the logo in promoting family planning



has recently been recognized in both Bamako, the capital of



Mali, and in Gujarat state in India. Last year the Mali Family Planning Association (AMPPF) and the Indian Medical Association (IMF) developed and launched the logos with the technical assistance of the Johns Hopkins University Population

Communication Services (JHU/PCS).

In both areas the launch was a large affair, attended by the respective Ministers for Health with wide media coverage. In Mali, theatre performers and musicians also added some colour to the event with plays and songs on family planning themes.

The main purpose of these logos is to increase the number of men and women who seek family planning information and services from a variety of different places. Easily identifiable, they will be spread among public health centres, private and public clinics, pharmacies and any other sites offering family planning advice. In Gujarat, more specifically, the logo will serve as identification and publicity for the services of those private doctors who are trained and certified family planning counsellors.

In Mali, plays and radio spots have started to make reference to the logo and the AMPPF is extending its use into other regions, with the ultimate goal of extending it throughout the country. Similarly in India, it is intended to extend the logo to all parts of the country.

■ Contact: JHU/PCS at 527 St Paul Place, Baltimore, MD 21202. Fax: (410) 659-6266.

TV puppets

After the success of its televised puppet series in Pakistan illustrating environmental problems, WWF UK last year joined forces with the Nigerian Conservation Foundation to hold a six-day puppet workshop.

With the help of Greg Doran from The Royal Shakespeare company, Richard Sharples, a prominent theatre designer, and a band of actors, writers, technicians and conservationists, a short film was made using a colourful cast of puppets. Called *The Market*, the loose theme was the destruction of trees, and the actors improvised around that subject.

With a population of 95 million, Nigeria's environmental problems



include a lack of public awareness especially at the local level. Culturally and ethnically diverse, it was important to put across messages that would reach out to everyone. By choosing the market as their setting and using pidgin English the workshop team was able to do just that. The puppets assumed real character and made everybody laugh.

As Ivan Hattingh (Head of Development at WWF UK) says, the success of the workshop reveals just how important television is as a tool to spread the environmental message.

■ For information on *The Market* video and a second documentary video on the workshop, contact: WWF UK, Panda House, Godalming, Surrey GU7 1XR. Fax: (+44 483) 426409.

Campaign for US population policy

The National Audubon Society is playing a leading role in pressing for a clear and specific American population policy in time for the International Conference on Population and Development (ICPD).

Audubon's Human Population and Resource Use Department is working with citizen interest groups, the White House and other government agencies to devise a new policy which will address reproduction, consumption and migration.

Three seminars of local activists, professionals and policy makers took place in November and December to assess progress since the 1972 Rockefeller Commission's report on 'Population and the American

Future' and produce recommendations for action and policy formulation.

As a follow-up to the ICPD conference, Audubon will host a national population conference in Miami from 18-20 November, 1994. All NGOs, the population constituency in the United States, policy representatives and international, national, state and local decision-makers are to be invited to consider the results of ICPD and to focus on implementation of American policy.

■ Patricia Waak, director of Audubon's population programme, is a member of the United States delegation to Cairo.

Gender game

In an effort to stimulate understanding of gender roles in African farming, a new board game called *Africulture* has been launched as a training exercise for professionals working in all aspects of African rural development.

The game in which players take on the role of male and female farmers and children was produced by ETC Consultants for Development Programmes with IIED.



In Sub-Saharan Africa women, typically, have high domestic workloads, while also producing over 60 per cent of the food and contributing up to 80 per cent of the labour force. *Africulture* helps participants to understand these problems and gain a better insight into human behaviour and decision making.

The game, which accommodates 10 to 36 players at any one time, has already had a huge impact on some 200 men and women who have undergone training courses from both the developing world as well as Western countries and – in most cases – play has been

followed up with invaluable reflection and discussion.

■ Contact: IIED, 3 Endsleigh Street, London WC1H 0DD. Fax (+44 71) 388 2826.

Water warning

By the year 2025, one out of three people will live in countries plagued by water stress or chronic water scarcity, according to a new study by Population Action International (PAI).

In 1990, more than 335 million people lived in countries defined as water-stressed or water-scarce, according to the study. That number is projected to increase at least eight-fold by 2025, to between 2.8 billion and 3.3 billion.

A number of countries, including the United States and Saudi Arabia, are drawing heavily on underground water supplies that cannot be replenished in any reasonable length of time. In nine of these water use is already exceeding renewable supplies – in Libya's case by nearly 400 per cent.

The potential impact of long-term population trends is illustrated by the case of India. Under the low-growth projection, India would fall into water stress by 2025, but would re-enter relative water abundance within a generation as its population began to shrink in size. Under the high projection, India's population would face water scarcity before the end of the next century.

■ Contact: PAI, 1120 19th Street NW, Washington DC 20036.

Swedish funding for IPPF

In the last issue of *People & the Planet* (page 32) it was stated that the Government of Sweden would be contributing to IPPF's new Partnership Challenges Fund. In fact, it has been agreed that the whole of the Swedish Government's contribution to IPPF for 1993/4 will go to IPPF's core funding.

FILMS

The view from the South

“Why won't they just trust women to have as many children as they need?” asks Deepa Dhanraj in exasperation, discussing the argument for her new film on population, *Behind the Lines*. Dhanraj's first attack on India's male-dominated population programme – and the international organizations she accuses of pulling its strings – came in 1992 with a brilliant, angry, hard-hitting polemical against the Gandhi government's draconian birth control programme, *Something Like A War* (its title drawn from a quote from Dr D Pal, Director of Maharashtra State's Family Planning Programme).

Now, obsessed – as she readily admits – with the politics of the international debate on population and development issues, she's entering the ring once again with a film that contrasts what happened to poor families in Scotland in the early 19th century Highlands clearances (evicted from their lands to make way for the more profitable sheep of the big estate owners, and then accused of being incapable of feeding their children) with what is happening in India today. It's the same debate, she claims, about inequality, unfair distribution of resources, about North and South, rich and poor – but cloaked in misleading statistics about population as the brake on development.

Behind the Lines is just one of four new *Developing Stories* films that TVE is co-producing with the BBC and the One World Group of Broadcasters. They will be screened around the world next year, at the time of the Cairo International Conference on Population and Development. At the heart of the *Developing Stories* concept is the commitment to make programmes that offer a new – and seldom seen – perspective on the debate about environment and development issues: the view from the South.

Thus the first, broadcast in 98 coun-



An image from one of the first Developing Stories films.

tries in May and June 1992, showcased six films on the root causes of the environment and development crisis that set the agenda for the UN Earth Summit. Not one of these focused on the familiar imagery of environmental programmes from Northern filmmakers: industrial pollution, global warming, deforestation, trees and glass and skies. Instead each identified development – or the failure of development – as responsible for environmental destruction: inequality, international debt, unfair trade practices, lack of human rights, poverty. With 13 international awards to date, the six films have now made broadcasting history as the most transmitted environmental series of all time.

Anxious to capitalize on this success story and keep environment and development issues in the public eye after Rio, the One World Group of Broadcasters unanimously agreed to back a new *Developing Stories* series. The four new films focus on the theme

of 'People, Population and Migration'.

Together with a major drama, *Black Easter* from screenwriter Dave Pirie on migration and the rise of new, right wing political groups in Europe, *Developing Stories II* will be part of a new *One World '94* season exploring the linked issues of population, migration and racism. In addition to Dhanraj's controversial *Behind the Lines*, there will be documentaries from Mozambican director Licinio Azevedo and Haitian Raul Peck and a major drama *The Tale of Three Lost Jewels* from the Palestinian film-maker Michel Khleifi.

The broadcast season will take place against a background of One World campaigns on environment, development, multiculturalism and women's issues planned across Europe and elsewhere. Going under the umbrella slogan of *People on the Move*, these are intended to continue from the Cairo Conference building to a crescendo at the time of the Beijing Women's Conference and the anniversary of the United Nations in October 1995. ■

Jenny Richards

BOOKS

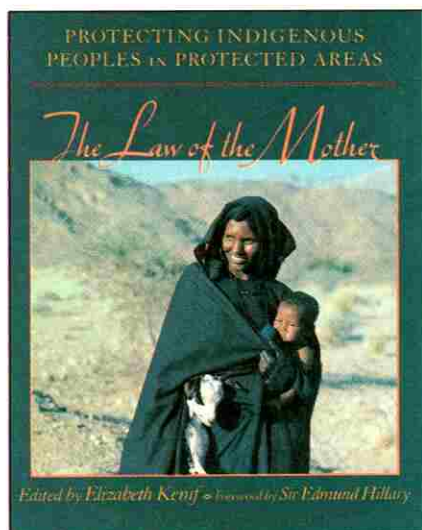
Indigenous peoples and protected areas

The Law of the Mother

Elizabeth Kemf (editor)

Earthscan, London, and Sierra Club Books, San Francisco, 1993. £19.95/\$25

The Law of the Mother is a collection of 30 accounts of conservation projects involving indigenous people. These are imaginative and inspiring examples of more or less successful efforts to halt or redirect the apparently inexorable march of 'progress', which so often means regress in the case of indigenous people.



The book is illustrated with excellent photographs, not least those taken by the great Victor Englebert when we lived with the Yanomami for two months some years ago. The pictures are beautiful and they do serve the purpose of illustrating how lovely the people and their environment can be. But, delightful though it is to enjoy them, they are not the pictures which should be included in a book which really wants to bring about change. Sadly, those would be of the normal reality: devastation, poverty, misery. If such pictures had been shown as a contrast to the beautiful ones on opposing pages the impact of the book would have been so much stronger.

Like so many other well researched and well produced books on environmental destruction, especially those dealing with the more exotic and remote parts of the world and the problems faced by the minorities living there, this one lacks the hard cutting edge of outrage which the subject demands. Unfortunately, this seems to

be inevitable when the contributing organizations appear to be more concerned with their own images as worthy and respectable bodies striving, through research and dialogue, to assess the situation and suggest cures rather than campaigning openly to bring about change. As far as it goes, it is well done but it is not enough because it is too easy for the governments concerned to ignore.

Talk of corruption, rampant short-term greed by local politicians and the subversion of their peoples' real needs to the false promises so persuasively put across by multinational companies are still taboo subjects. One is sometimes forced to the conclusion that, even if it was not the field workers' intention, their reports have been watered down so as not to offend the authorities in the country where further interesting projects are planned.

The significance of indigenous people is robustly endorsed and the vital role they have to play in the struggle we all face to create a sustainable planet or die is spelled out repeatedly. Specifically, the essential link between people and parks is recognized again and again and there is a constant message that 'more needs to be done'. Slow practical solutions are important and should certainly not be abandoned, nor do I mean to criticize them, but without a radical attack on the political and economic systems which cause the problems they will be no more than palliatives.

It is simply not enough to couch these issues in the gentle platitudes with which so many of these accounts end. "It is to be hoped that the wise people of (Bisnois) community will...try to keep alive the spirit of zealous preservation of the desert environment for continued property." "In the meantime, the Cree people will continue to try to manage their land...as they have done for centuries, in a harmonious and sustainable way." "It must be some comfort to the old men of the (Kenyan coastal) forests that perhaps, after all, their beloved Sacred Groves may survive." And to write about Irian Jaya (which the people themselves now prefer to call West Papua) without even referring in passing to the iniquitous oppression of the Papuan people by the Indonesians over the last 30-odd years since the UN foolishly accepted the rigged elections and relinquished all responsibility is, to say the least, ingenuous. The issues facing indigenous people are life, death, starvation, beggary, prostitution, slave labour and the worst sort of 'ethnic cleansing'.

It is perfectly clear from the text that the authors of the accounts are aware of the seriousness and urgency of it all and I am pretty sure that most of them would have liked to have been more outspoken. Instead, there is a blandness about this book which is all too familiar, the sort of naive assumption that all will be well in a perfect world if a few good people get together and work towards the excellent ideals of their various NGOs. This is the National Geographic ideology, which is why the text in that magazine never matches the power of its photographs. Someone in the background seems to be saying "Let's not have anything too controversial or we may not be able to

go back for more."

Despite this tendency, this is an important and fascinating book, which represents a wide range of first-hand experience by people who know and care what is happening to indigenous peoples. It deserves to be bought and read.

Robin Hanbury-Tenison

Robin Hanbury-Tenison is President of Survival International, the worldwide movement to support tribal peoples.

Goodbye to the Poc

Mama Poc. An Ecologist's Account of the Extinction of a Species

Anne La Bastille

W W Norton, New York, 1991. \$10.95

This is not exactly a new book, having been first published in 1990, with this paperback edition following a year later. But, as the author says in a letter to this magazine, it does relate directly to the subject of people and wildlife which we treated in 1993.

For 24 years Anne La Bastille was involved in a long battle to save the flightless diving bird found only in the highlands of Guatemala: a giant grebe known locally as a Poc, from its unique call. From the 1960s until the late 1980s she monitored the bird's decline from a stable population of over 200 to final extinction.

Known affectionately as Mama Poc, Anne La Bastille did everything possible to mobilize efforts to prevent the poisoning of Lake Atitlán, and the destruction of the reed beds where the birds made their home. Local people joined in the conservation effort, a game warden was appointed, but the various pressures on the once-pristine lake were too great.

For a time, as she writes, the habitat was improved and the birds prospered but she could not fight the combined effects of "an earthquake, civil war, uncontrolled real estate development, and a human population explosion."

This is a well-told tale, which shows how complex are the changes threatening the survival of species, and how those with money and power have a special responsibility to help in saving the beauty and diversity of the natural world.

John Rowley

Facts for Life

UNICEF/WHO/UNESCO/UNFPA

Revised edition, 1993. \$1

With 8 million copies in print and 176 language versions, this compilation of child health information that every family in the developing world has a right to know, has become the basis of health education efforts in many countries, and a primer for health educators around the world since it was first published in 1989.

Organizations and individuals who want copies of this revised edition, or more information, should write to UNICEF House - DH40, Facts for Life Unit, 3 UN Plaza, New York, NY 10017, USA.